VPDES PERMIT FACT SHEET

This document gives the pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq. The discharge results from cooling water from a hydroelectric power generation operation. This permit action consists of revising the special conditions. This facility has not been in operation since 2009. Repairs are needed to the turbines to begin operating again. A schedule for reopening has not been developed.
(SIC Code: 4911)

1. **Facility Name and Address:**
   Reusens Hydroelectric Plant
   4200 Hydro Street
   Lynchburg, VA 24502
   Location: 4200 Hydro Street, Lynchburg, VA 24503

2. **Permit No: VA0087114** Existing Permit Expiration Date: May 27, 2014

3. **Owner / Facility Contacts:**
   John M. McManus, Vice President Environmental Services, (614) 716-1233; jmmcmanus@aep.com
   Alan R. Wood, Manager Water and Ecological Resource Services, (614) 716-1233; arwood@aep.com
   Jon Magalski, Environmental Specialist, (614) 716-2240; jmmagalski@aep.com
   Lindsey Forhan, Engineer, (614) 716-2275; lgforhan@aep.com

4. **Application Complete Date:** November 26, 2013
   Permit Drafted By: Becky L. France, Water Permit Writer
   Date: March 7, 2014 (Revised 3/11/14, 5/6/14, 5/20/14)
   DEQ Regional Office: Blue Ridge Regional Office
   Reviewed By: Frank Bowman, Water Permit Writer
   Date: 3/11/14
   Public Comment Period Dates: 4/19/14 – 5/19/14

5. **Receiving Stream Classification:**

Receiving Stream:	James River (River Mile: 263.63)		
Watershed ID:	VAC-H03R (James River/Blackwater Creek/Ivy Creek)		
River Basin:	James River		
River Subbasin:	James River, Upper		
Section:	11g		
Class:	III		
Special Standards:	PWS		
7-Day, 10-Year Low Flow:	277 MGD	7-Day, 10-Year High Flow:	581 MGD
1-Day, 10-Year Low Flow:	219 MGD	1-Day, 10-Year High Flow:	496 MGD
30-Day, 5-Year Low Flow:	361 MGD	Harmonic Mean Flow:	1016 MGD
Tidal:	No	303(d) Listed:	Yes

Attachment A contains a copy of the flow frequency determination memorandum.

6. **Operator License Requirements:** None

7. **Reliability Class:** NA

8. **Permit Characterization**:

( )	Private	( )	Interim Limits in Other Document
(X)	Federal	( )	Possible Interstate Effect
( )	State		
( )	POTW		
( )	PVOTW		

9. **Wastewater Treatment System:** A description of any wastewater treatment system is provided below. See **Attachment B** for the water flow schematic and **Attachment C** for a copy of the site inspection report. Any treatment units associated with the discharge are listed in the table below.

Table I
DISCHARGE DESCRIPTION

Outfall No.	Source of Discharge	Treatment (Unit by Unit)	Flow (Long Term Average) MGD
001	Contact Cooling Water from Unit 1 Intermediate Guide Bearing	None	0.025 MGD
002	Contact Cooling Water from Unit 2 Intermediate Guide Bearing	None	0.025 MGD
003	Contact Cooling Water from Unit 3 Intermediate Guide Bearing	None	0.025 MGD
004	Contact Cooling Water from Unit 4 Intermediate Guide Bearing	None	0.0216 MGD
005	Contact Cooling Water from Unit 5 Intermediate Guide Bearing	None	0.0216 MGD
006	Contact Cooling Water from Sump Overflow (Units 1,2 and 3 generator coolers/ thrust bearings #1 air compressor, units 1, 2, and 3 intermediate bearings)	None	0.036 MGD
007	Storm water from transformer deck	None	NA

The Reusens Hydroelectric Plant is a run-of -the-river generating facility with five generators. The facility has a total generating capacity of 12.2 megawatts. The turbines in Building A date back to 1930 and the turbines in Building B date to 1925. None of the turbines are currently operational.

Each of the generators is driven by a turbine which is powered by water drawn from the forebay of the dam. A shaft connects each turbine to a generator. The shaft is held in place by intermediate and lower guide bearings. The lower guide bearings are lubricated by the surrounding water. The intermediate bearings are located on the shaft at a level approximately 10 feet below the forebay. Water is piped in the 0.020 inch clearance between the intermediate bearings.

The armature of each generator is suspended on a thrust bearing which is located on the top of each unit. These thrust bearings allow unencumbered rotation of the shaft. The thrust bearings are lubricated by oil. These thrust bearings are cooled to lower elevated lubricating oil temperature caused by friction between the thrust bearing and the rotor. The transfer of heat is accomplished by passing the heated oil over a series of cooling coils containing service water taken from the river.

As the rotor of the generator units turn and create a current in the surrounding coils, heat is generated. Generator coolers, four per unit, are situated on each side of the generator to absorb this heat and maintain a cooler air temperature within the generator. The coolers are radiator-like devices made up of series of copper tubes.

Generator cooler water and thrust bearing cooling water from generators 1, 2, and 3 is discharged to a station sump. This sump has a capacity of 30,000 gallons and has an oil sheen sensor. Sump water is then gravity fed to cool the intermediate bearings for Units 1, 2, and 3. Overflow water from the sump is discharged to the tailrace via gravity through a carbon steel pipe on the east side of the main powerhouse building to outfall 006.

10. **Sewage Sludge Use or Disposal:** Not Applicable (All domestic wastewater is discharged to the sanitary sewer.)

11. **Discharge Location Description:**
The latitude and longitude of outfalls 001, 002, 003, 004, 005, 006, and 007 is N $37^{0}27'50''$, E $79^{0}11'08''$.

Name of Topo: Lynchburg, Virginia Number: 106D

12. **Material Storage:**.

Limited quantities of lubricating oil (68 oil), grease, aerosol degreasers, general lubricants, paints, and solvents are stored on the main floor of Building B. Excess lubricating oil is stored in Building A in secondary containment. There is a bolt plate over the opening from Building A to the river. There is a propane tank outside for the emergency generators.

13. **Ambient Water Quality Information:** Memoranda or other information which helped to develop permit conditions (special water quality studies, STORET data, and any other biological and/or chemical data, etc.) are listed below.

The section of the James River from Big Island dam (below the Blue Ridge Parkway) downstream to the I-95 bridge in Richmond is listed on the 303(d) impaired waters list due to PCBs in fish tissue. A Total Maximum Daily Load (TMDL) report is scheduled to be completed in 2016. This segment of the James River is also impaired for *E. coli*. The *E. coli* TMDL report approved by EPA in 2008 did not include a wasteload allocation for this facility.

The Virginia Department of Game and Inland Fisheries (VDGIF) has designated the reach of the James River downstream from the discharge points as state threatened and endangered species water for the green floater (mussel). A copy of the VDGIF information on species of concern in the area of the discharge is included in **Attachment E.**

14. **Antidegradation Review and Comments:** Tier 1 _____ Tier 2 **X** Tier 3 _____

There are no new data to indicate that the water quality for this stream segment is not better than the water quality standards. Therefore, the designation of this segment of the James River as Tier 2 has been continued from the previous permit term. No significant degradation is allowed for this classification.

Mixing Zone Calculations and Antidegradation Wasteload Allocation Baselines:

The MIXER program was run to determine the percentage of the receiving stream flow that could be used in the wasteload allocation calculations. The program output for outfall 006 indicated that 28.1 percent of the 7Q10, 0.47 percent of the low flow 1Q10, and 31.82 percent of the 30Q10 may be used to calculate acute and chronic wasteload allocations. A copy of the printout from the MIXER run is included in **Attachments G.**

When applied, these "antidegradation baselines" become the new water quality criteria in Tier 2 waters, and effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutant. Effluent data were used to determine 90th percentile pH and temperature values for the antidegradation wasteload allocation spreadsheets and are included in **Attachment F**. Average hardness and 90th percentile pH and temperature values for the receiving stream were based upon upstream STORET monitoring data (2-JMS270.84) found in **Attachment E**. The average instream hardness was also used for the average effluent hardness value. Antidegradation baselines have been calculated as described above and included in **Attachments G**. Baselines are subject to change based on additional stream and/or effluent information.

Reusens Dam (aka Judith Dam) was built in 1851. The first two generators began operation in 1904. The facility was modernized and rebuilt in 1924. This facility began discharging prior to November 28, 1975 when the antidegradation policy requirements set forth in the Clean Water Act became effective. The facility's discharge is existing, and the permittee indicates no proposed increase in operation resulting in an increase in flow. As the facility is not proposing any increase in the loading of any pollutants, the permit limits are in compliance with antidegradation requirements set forth in 9 VAC 25-260-30. The antidegradation review was conducted as described in Guidance Memo 00-2011, and complies with the antidegradation policy contained in Virginia's Water Quality Standards.

15. **Site Inspection:** Date: 07/15/09 Performed by: Stephanie Bowman
Attachment C contains a copy of the site inspection memorandum. The last compliance and laboratory inspection was conducted by Stephanie Bowman on July 15, 2009. Repairs are needed to the turbines, and the facility has not discharged since March 2011.

16. **Effluent Screening and Limitation Development:**

Outfalls 001 – 005 (Intermediate Bearings)
Outfalls 001-005 result from the discharge of cooling water exiting the intermediate bearings to the James River. There is no access of these discharges from the five guide bearings. The cooling water from these bearings has no contact other than with the piping carrying it to the intermediate bearing the shaft of the turbine, and the shaft alignment bearing. Thus, there is no reason to believe the constituents of this contact cooling water differ significantly from outfall 006. Outfalls 001, 002, 003, 004, and 005 are submerged in the James River.

Outfall 006 (Sump)

There have been no discharges from outfall 006 since March 2011. Therefore, data required for the application not required by the permit were based upon 2008 application data. Oil and grease data for outfall 006 was below the quantification level of 5.0 mg/L. Total residual chlorine 0.16 mg/L was above the quantification level but is insignificant due to the dilution in the receiving water. The permittee reported that they did not believe any of the toxic parameters were believed present in their discharge. The only metals data for the cooling water was collected in 1988, and these data are included in **Attachment F**.

Flow – There are no limits on flow. The long term maximum flow on the application was measured as 0.058 MGD. Monitoring for flow shall continue to be monitored quarterly.

pH – Limitations on pH were initially added due to the inclusion of floor drains and screen cleanings. From December 2002 through March 2011 there were no exceedances of the pH limits. The limits of 6.0 S.U. minimum and 9.0 S.U. maximum have been continued from the previous permit. The maximum pH of 8.7 S.U. on December 2009 is within 0.5 S.U. of the 9.0 S.U. limit. In accordance with the VPDES Permit Manual, this parameter is not eligible for reduced monitoring. Therefore quarterly pH monitoring has been continued from the previous permit. See **Attachment F** for a summary of the pH monitoring data.

Temperature – From December 2002 through March 2011 there were no exceedances of the maximum temperature limitation. The maximum temperature during this period of 30.7 °C was recorded in July 2005. The maximum temperature limitation of 32 °C has been continued from the previous permit. Since this outfall consists of cooling water, there is a potential for discharge temperature to vary significantly. During the previous permit term, the monitoring frequency was quarterly. In order to obtain enough data for calculating the 90th percentile temperature value used to determine the antidegradation wasteload allocations it was necessary to include data beginning in December of 2002. For this reissuance, monthly monitoring during the months of June through September will be required to verify compliance and provide the necessary data

to calculate antidegradation wasteload allocations in future permits. See **Attachment F** for a summary of the temperature data.

Total PCBs – The monitoring results for the discharge indicate PCBs elevated above the water quality criterion of 640 pg/L (**Attachment F**). Therefore, provisions for a Pollutant Minimization Plan and additional monitoring have been included in Part I.B.7 of the permit.

Storm Water (Outfall 007)
There are no monitoring requirements associated with discharge from the generator area. The SIC Code associated with the facility is not regulated as storm water associated with industrial activity as per 9 VAC 25-151-10 of the VPDES permit regulations. However, the discharge from this area contains PCBs elevated above the water quality criteria of 640 pg/L (**Attachment F**). A PCB TMDL is expected to be completed in 2016. If PCB monitoring results are above the wasteload allocation or other endpoint specified in an approved TMDL, the permit shall submit a pollutant minimization plan (PMP) to DEQ within 6 months. If a PMP is required, PCB monitoring has been required in Part I.B.7 of the permit to provide data for the next reissuance application.

17. **Antibacksliding Statement:** Since there are no changes in the limitations from the previous permit, the permit limits comply with the antibacksliding requirements of 9 VAC 25-31-220 L of the VPDES Permit Regulation.

18. **Compliance Schedules:** For this reissuance, there are no compliance schedules.

19. **Special Conditions:**

A. **Notification Levels (Part I.B.1)**

Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all industrial permits for manufacturing, mining, commercial, and silvicultural dischargers. This special condition requires that a permittee notify the DEQ of any changes in effluent quality or the presence of certain pollutants in the effluent.

B. **Cooling Water (Part I.B.2)**

Rationale: Chemical additives may be toxics or otherwise violate the receiving stream water quality standards. Cooling water treatment chemicals or additives may not be added without first notifying the DEQ Regional Office. Upon notification, the DEQ Regional Office can determine if this activity will warrant a modification to the permit.

C. **Materials Handling/Storage (Part I.B.3)**

Rationale: 9 VAC 25-30-50A prohibits the discharge of any wastes into State waters unless authorized by permit. The Code of Virginia § 62.1-44.16 and 62.1-44.17 authorized the Board to regulate the discharge of industrial waste or other waste. State

Water Control Law § 62.1-44.18:2 authorizes the Board to prohibit any waste discharge that would threaten public health or safety, interfere with or be incompatible with treatment works or water use.

D. **Best Management Practices (BMP) Plan (Part I.B.4)**

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-220 K requires the use of best management practices (BMPs) where applicable to control or abate the discharge of pollutants when numeric effluent limits are infeasible or the BMPs are necessary to achieve effluent limits or to carry out the purpose or intent of the Clean Water Act and State Water Control Law.

E. **Total Maximum Daily Load (TMDL) Reopener (Part I.B.5)**

Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under Section 303 of the Act.

F. **Closure Plan (Part I.B.6)**

Rationale: This condition establishes the requirement to submit a closure plan for the treatment facility if the treatment facility is being replaced or is expected to close. This requirement is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated wastewater discharge, spills, leaks, and exposure to raw materials is eliminated and water quality is maintained. Section 62.1-44.21 requires every owner to furnish requested plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from this discharge on the quality of state waters, or such other information as may be necessary to accomplish the purpose of the State Water Control Law.

G. **Upper James River PCB TMDL Requirements (Part I.B.7)**

Rationale: State Water Control Law § 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State Waters and Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. Development of a PCB Total Maximum Daily Load (TMDL) requires consideration of the Virginia water quality criterion for Total PCBs (9 VAC 25-260-140) to protect the "fishable" designated use (9 VAC 25-260-10). This special condition allows for the requirement to develop a Pollutant Minimization Plan should a reduction in PCBs be necessary to bring the discharge into compliance with an approved TMDL.

This special condition also requires the permittee to conduct follow-up monitoring. These requirements are consistent with 9 VAC 25-260-280 and Guidance Memo 09-2001 procedures. The results from this monitoring will be used to implement the PCB TMDL that is being developed for the James River.

H. **Permit Application Requirement (Part I.B.8)**

Rationale: The VPDES Permit Regulation (9 VAC 25-31-100 D) and 40 CFR 122.21(d)(1) require submission of a new application at least 180 days prior to expiration of the existing permit. In addition, the VPDES Permit Regulation (9 VAC 25-31-100 E.1) and 40 CFR 122.21 (e)(1) note that a permit shall not be issued before receiving a complete application.

I. **Conditions Applicable to All VPDES Permits (Part II)**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. **NPDES Permit Rating Worksheet:** Total Score: 50
In accordance with the VPDES Permit Manual, the NPDES Permit Rating Worksheet has been completed, and this facility has been classified as an industrial minor. The completed worksheet is found in **Attachment H**.

21. **Changes to the Permit:**

A. **The following special condition has been added to the permit:**

In accordance with the VPDES Permit Manual, a Closure Plan Special Condition (Part I.B.6) has been added to provide requirements for the closure of treatment plant or wastewater discharge components.

B. **Special conditions that have been modified from the previous permit are listed below: (The referenced permit sections are for the new permit.)**

1. The PCB Monitoring Special Condition has been revised and renamed as the Upper James River PCB TMDL Requirements Special Condition (Part I.B.7).

2. The Cooling Water Special Condition (Part I.B.2) has been revised to remove references to the boilers because they are not applicable to this facility.

3. The Materials Handling/Storage Special Condition has been revised to include a reference to the Best Management Practice Plan in Part I.B.4.

4. In accordance with the VPDES Permit Manual, boilerplate permit pages (Part II) have been revised to reflect changes in the VPDES permit regulations regarding laboratory certifcation requirements and reporting of noncompliance.

C. **Permit Limits and Monitoring Requirements:** See Table III on page 13 for details on changes to the effluent limits and monitoring requirements.

22. **Variances/Alternate Limits or Conditions:** There are no variances or alternate limits associated with this permit.

23. **Public Notice Information required by 9 VAC 25-31-290 D:**

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Becky L. France at:

Virginia DEQ
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
540-562-6700
becky.france@deq.virginia.gov

Persons may comment in writing or by e-mail to the DEQ on the proposed permit action and may request a public hearing during the comment period. Comments shall include the name, address, and telephone number of the writer and all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the DEQ will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Blue Ridge Regional Office in Roanoke by appointment.

24. **303(d) Listed Segments (TMDL):** This facility discharges to the James River. The stream segment receiving the effluent is listed on the current 303(d) list for bacteria impairment. Since the discharge is not expected to contribute to the bacteria impairment, *E. coli* monitoring has not been included in the permit.

The section of the James River from Big Island dam (below the Blue Ridge Parkway) downstream to the I-95 bridge in Richmond is listed on the 303(d) impaired waters list due to PCBs in fish tissue. A Total Maximum Daily Load (TMDL) report is scheduled to be completed in 2016.

25. **Additional Comments:**

A. **Reduced Effluent Monitoring:** In accordance with Guidance Memo 98-2005, all permit applications received after May 4, 1998, are considered for reduction in effluent monitoring frequency. Only facilities having exemplary operations that consistently meet permit requirements may qualify for reduced monitoring. To qualify for consideration of reduced monitoring requirements, the facility should not have been issued any Warning Letters, Letter of Noncompliance (LON) or Notices of Violation (NOV), or be under any Consent Orders, Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years. The facility has not received any NOVs and warning letters within the past three years. The facility has not discharged since 2010, so there are no recent data to evaluate for reduced monitoring. Since repairs or upgrades to the turbines are needed, cooling water monitoring frequencies will not be considered for reduced monitoring until three years of data are available following these changes.

B. **Previous Board Action:** None

C. **Staff Comments:** The discharge is not controversial. The discharge is not addressed in any planning document but will be included, if applicable, when the plan is updated. On December 2, 2013, the Virginia Department of Health commented on the application noting that the raw intake for the City of Lynchburg (downtown intake) is located approximately downstream from the discharge.

On May 6, 2014 the permit was revised to require that a Pollutant Minimization Plan be submitted within 6 months of an approved PCB TMDL rather than 1 year. Additionally, the wording of the Upper James River PCB TMDL Special Condition (Part I.B.7) was clarified.

On May 20, 2014, some clarifications were made to the Cooling Water Special Condition (Part I.B.2) and the Materials Handling/Storage Special Condition (Part I.B.3). Additionally, the Upper James PCB TMDL Requirements Special Condition (Part I.B.7) was revised to note that the impact of precipitation may be included in the Pollutant Minimization Plan (PMP). Also, the wording of the criteria for requiring a PMP was revised to remove "exceedances of the water quality criterion" because an endpoint noted in an approved TMDL may be used to derive a wasteload allocation, and this endpoint may be more stringent than the water quality criterion to account for bioaccumulative effects of PCBs. The revised language requires a PMP to be developed where the results of the PCB monitoring are above the wasteload allocation or other endpoint specified in an approved TMDL. The cover page of the permit was revised so that the new permit expires at the end of the previous month on April 30, 2019.

D. **Public Comments:** The permittee commented on the draft permit, and the responses to those comments is found in **Attachment I**. In response to these comments the permit was revised to clarify PCB TMDL requirements in Part I.B.7. Some minor clarifications were made to Part I.B.2 and Part I.B.3 of the permit.

E. **Tables:**

Table I	Discharge Description (Page 2)
Table II	Basis for Monitoring Requirements (Page 12)
Table III	Permit Processing Change Sheet (Page 13)

F. **Attachments:**

A. Flow Frequency Memorandum
B. Water Flow Schematic
C. Site Inspection Reports
D. USGS Topographic Map
E. Ambient Water Quality Information
- DEQ Planning Review Memo
- 2012 Integrated Water Quality Assessment Unit Summary Report (Excerpt)
- STORET Data (Station 2-JMS270.84)
- Endangered Species Information

F. Effluent Data
G. Antidegradation Baseline Information
- Mixing Zone Output (MIXER 2.1)
- Antidegradation Wasteload Allocation Spreadsheet

H. NPDES Permit Rating Worksheet
I. Public Notice and Response to Comments

Table II
BASIS FOR LIMITATIONS – INDUSTRIAL

( ) Interim Limitations
(x) Final Limitations

OUTFALL: 006
Long Term Ave: 0.036 MGD

Effective Dates - From: Effective Date
To: Expiration Date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/ 3 Months	Estimate
pH (S.U.)	1	NA	6.0	NA	9.0	1/ 3 Months	Grab
Temperature	1	NA	NA	NA	32 °C	1/Month (between June - September)	Immersion Stabilization

NA = Not Applicable
NL = No Limitations; monitoring only

The basis for the limitations codes are:
1. Water Quality Criteria
2. Best Professional Judgment

Table III
PERMIT PROCESSING CHANGE SHEET

LIMITS AND MONITORING SCHEDULE:

Outfall No.	Parameter Changed	Monitoring Requirement Changed		Effluent Limits Changed		Reason for Change	Date
		From	To	From	To		
006	flow temperature	1/Month	1/Month (during the months of June - September)			Temperature monitoring is required monthly during the months of June through September. Given the historical temperature data, monitoring during the cooler months is not deemed necessary to track compliance. Due to the presence of mussel habitat in this segment of the James River, temperature monitoring during the warm months is appropriate.	1/3/14

Attachment A

Flow Frequency Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
South Central Regional Office - Water Planning
7705 Timberlake Road Lynchburg, VA 24502 434/582-5120

SUBJECT: Flow Frequency Determination
AEP Reusens Hydroelectric Plant – VA#0087114

TO: Becky France

FROM: Amanda Gray

DATE: July 29, 2013

COPIES: File

This memo supersedes my January 22, 2009 memo regarding the subject permit. The AEP Reusens Hydroelectric Plant discharges via numerous outfalls located at the base of the Reusens Dam on the James River near Lynchburg, VA. Stream flow frequencies are required at the Dam site for use by the permit writer in developing effluent limitations for the VPDES permit.

The USGS has operated a continuous record gage on the James River at Holcomb Rock, VA (#02025500) since 1926. Flows at the gage have been regulated by Gathright Dam since 1979. The flow frequencies for the gage have been determined using the regulated period of record and projecting the flow frequencies at the gage to the discharge point. The gage is located upstream of the Reusens Dam at Holcomb Rock, VA.

James River at Holcomb Rock, VA (#02025500):
Drainage Area = 3256.0 mi^2

1Q10 = 336 cfs	High Flow 1Q10 = 762 cfs
7Q10 = 424 cfs	High Flow 7Q10 = 892 cfs
30Q5 = 554 cfs	High Flow 30Q10 = 1080 cfs
30Q10 = 487 cfs	Harmonic Mean = 1560 cfs

James River below Reusens Dam:
Drainage Area = 3288 mi^2

1Q10 = 339 cfs (219 MGD)	High Flow 1Q10 = 768 cfs (496 MGD)
7Q10 = 428 cfs (277 MGD)	High Flow 7Q10 = 900 cfs (581 MGD)
30Q5 = 559 cfs (361 MGD)	High Flow 30Q10 = 1089 cfs (704 MGD)
30Q10 = 492 cfs (318 MGD)	Harmonic Mean = 1573 cfs (1016 MGD)

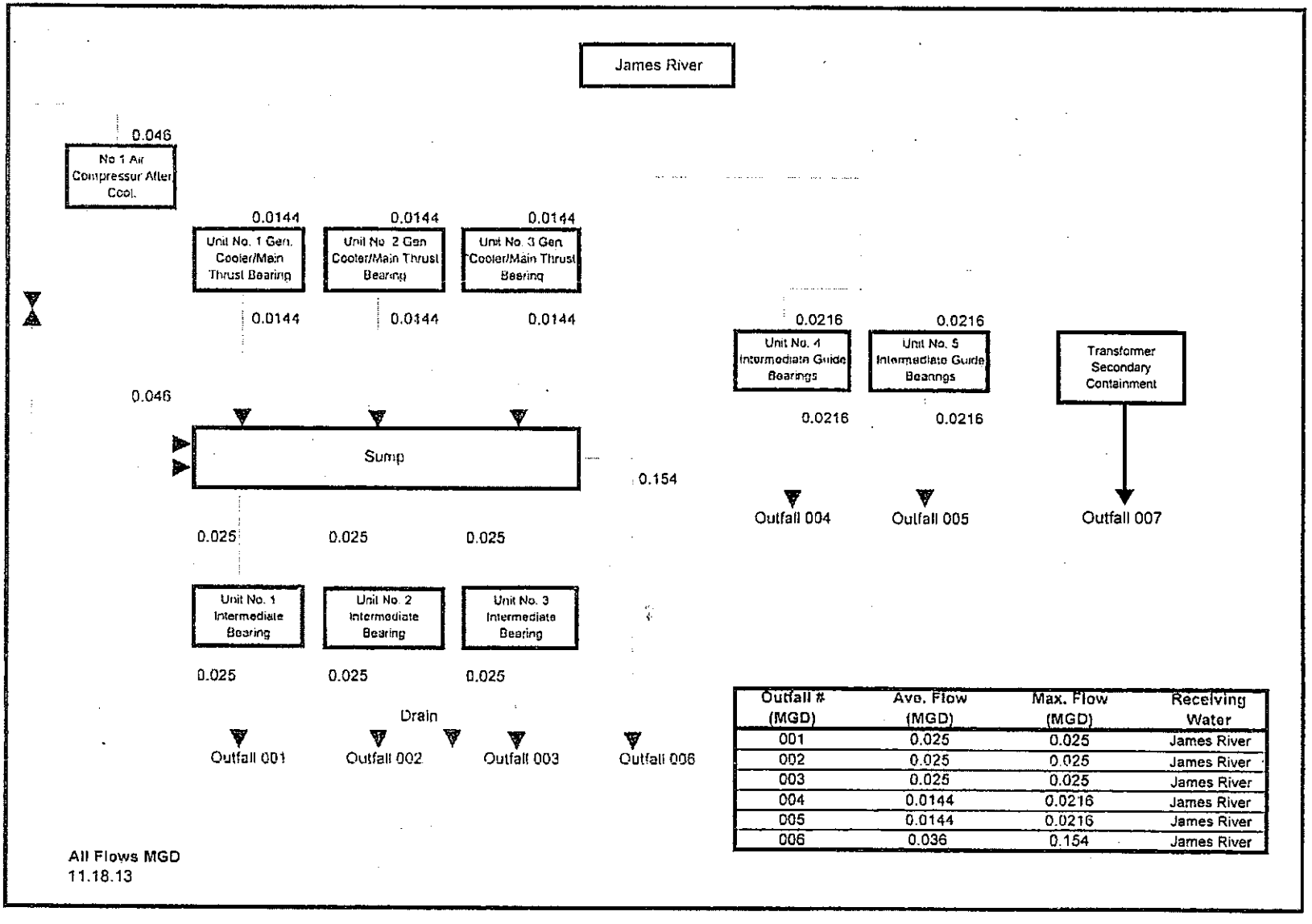
The high flow months are January through May. If you have any questions concerning this analysis, please let me know.

Attachment B

Water Flow Schematic

Figure 2

Reusens Hydroelectric Plant
VPDES Flow Diagram



Outfall #	Ave. Flow (MGD)	Max. Flow (MGD)	Receiving Water
001	0.025	0.025	James River
002	0.025	0.025	James River
003	0.025	0.025	James River
004	0.0144	0.0216	James River
005	0.0144	0.0216	James River
006	0.036	0.154	James River

Note: All flow values provided in Figure 2 are representative of the previous permit term. Plant operation during the current permit term was atypical and flow data do not characterize normal plant operation. Flow data measured over the current permit term are summarized in Appendix D. See Appendix A Note 2 for a further description of the given flow values.

Attachment C

Site Inspection Reports

Virginia Department of Environmental Quality

COMPLIANCE INSPECTION REPORT

FACILITY NAME: AEP Reusens Hydroelectric Plant		**INSPECTION DATE: 07-15-09**	
		INSPECTOR: **Stephanie Bowman**	
PERMIT No.: VA0087114		**REPORT DATE: 07-21-09**	
TYPE OF FACILITY: ☐ Municipal ☐ Major ☑ Industrial ☑ Minor ☐ Federal ☐ Small Minor ☐ HP ☐ LP		**TIME OF INSPECTION:**	Arrival 9:30 / Departure 10:45
		TOTAL TIME SPENT (including prep & travel)	5 hours
PHOTOGRAPHS: ☑ Yes ☐ No		**UNANNOUNCED INSPECTION?** ☐ Yes ☑ No	
REVIEWED BY / Date: **Fred T. DiLella**			
PRESENT DURING INSPECTION: David Bailey and Richard Haley			

WL/NOV # : Paraphrase Noncompliance issues	**Reported Cause of Noncompliance**	**Corrective Action Taken:**
NA	NA	NA

OVERVIEW:

1. The Reusens Hydroelectric Plant is a 5-unit facility. At the time of the inspection, however, the #4 unit was not in operating condition.
2. The normal hours of operation for the facility are 0700 to 1930, Monday through Thursday.
3. When Appalachian Power (i.e., APCO) obtained the property, the company replaced the generators in the plant.
4. In 1932, 1933 the plant went into operation in its present form.
5. Normally the 5 units run on a regular basis. None of the units run more often or more consistently than any other unit.
6. The plant obtains its cooling water from the James River by 3 intake pumps.
7. The cooling water does not come in contact with any plant processes, before it discharges into the James River.
8. The non-process cooling water serves to maintain a cooler air temperature within the generator and to lower elevated lubricating oil temperatures between the thrust bearings and the rotor.
9. After cooling the generators and thrust bearings for Units #1, #2, and #3, the cooling water discharges into the Reusens Plant sump.
   a. The sump has a capacity of 80 feet, 8 inches X 7 feet, 2 inches X 7 feet, 1 inch.
   b. Each generator in Units #1, #2, and #3 has a drain box for the generator cooling water.
   c. The generator cooling water drain box gravity feeds the sump.
   d. The sump also receives cooling water from the #1 air compressor after-cooler.
   e. The sump also receives water from an emergency shower and eyewash.
   f. The sump provides cooling water for the intermediate bearings for Units #1, #2, and #3.

10. The staff has added an oil sheen sensor to the Main Reusens Plant sump that was indicating no sheen on the water surface at the time of the inspection.
    a. The cooling water for the intermediate bearings in Unit #3 discharges into the James River via Outfall 003.
11. The Unit #4 and #5 intermediate guide bearings receive their cooling water directly from the James River and not from the Reusens Plant sump.
12. The cooling water for the intermediate bearings in Units #4 and #5 discharges into the James River.
    a. The cooling water for the intermediate bearings in Unit #4 discharges into the James River via Outfall 004.
    b. The cooling water for the intermediate bearings in Unit #5 discharges into the James River via Outfall 005.
13. The Reusens Plant sump also discharges into the James River.
    a. The overflow from the sump discharges into the tailrace of the dam via Outfall 006.
    b. The sump also has a drain, which would also discharge via Outfall 006.
    c. Normally the operators do not open the sump drain.
    d. All sump water, whether the cooling the intermediate bearing in Units #1, #2, and #3 or the water exiting the Plant via Outfall 006, leaves the sump by gravity flow.
14. Outfalls 001, 002, 003, 004, and 005 are submerged in the James River.
15. An additional outfall 007 has been added to the permit since the last inspection at the transformer pad. All the transformers contain non-PCB mineral oil. In the event of a leak, the valve at outfall 007 can be used to test any stormwater contamination prior to being released.
16. There is no sampling requirement for the intermediate bearing cooling water from Units #1 through #5.
17. The VPDES Permit requires sampling for pH and Temperature from Outfall 006 and the flow is estimated.
    a. The outfall consists of a pipe, which extends from the sump.
    b. The outfall pipe is on the East Side of the main powerhouse building.
17. On the day of the inspection the facility and the outfall appeared to be well maintained and in good condition. The AEP staff appears to be knowledgeable and conscientious regarding the VPDES Permit and other environmental issues.

OVERVIEW (Continued):

DMR Review:

April 2008 – June 2008

	006	
Flow est. (MGD)	-	0.035
pH	-	7.2
Temperature (^{0}C)	-	15.0

July 2008 – September 2008

	006	
Flow est. (MGD)	-	0.030
pH	-	7.7
Temperature (^{0}C)	-	27.0

October 2008 – December 2008

	006	
Flow est. (MGD)	-	0.030
pH	-	7.7
Temperature (^{0}C)	-	26.0

January 2009 – March 2009

	006	
Flow est. (MGD)	-	0.029
pH (SU)	-	8.7
Temperature (^{0}C)	-	5.0

COMPLIANCE RECOMMENDATIONS:

There are no recommendations at this time.

OVERVIEW (Continued):

EFFLUENT FIELD DATA:

Flow	N/A MGD	**Dissolved Oxygen**	NA mg/L	**TRC (Contact Tank)**	NA mg/L
pH	NA S.U.	**Temperature**	NA °C	**TRC (Final Effluent)**	NA mg/L

Was a Sampling Inspection conducted? ☐ Yes (see Sampling Inspection Report) ☑ No

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall: ☐ Shore based ☑ Submerged Diffuser? ☐ Yes ☑ No
2. Are the outfall and supporting structures in good condition? ☑ Yes ☐ No
3. Final Effluent (evidence of following problems): ☐ Sludge bar ☐ Grease
   ☐ Turbid effluent ☐ Visible foam ☐ Unusual color ☐ Oil sheen
4. Is there a visible effluent plume in the receiving stream? ☐ Yes ☑ No
5. Receiving stream: ☑ No observed problems ☐ Indication of problems (explain below)

Comments: At the time of the inspection there was no observed sheen or discoloration in the receiving waters resulting from discharge at the outfalls.

REQUIRED CORRECTIVE ACTIONS:

No compliance recommendations at this time.

NOTES and COMMENTS:

1. The facility was well maintained and ensured that spill containment materials were readily available.
2. The staff has installed an oil sheen detection monitor on the Main Ruesens Sump.

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTH CENTRAL REGIONAL OFFICE
WATER DIVISION

7705 Timberlake Road Lynchburg, VA 24502

SUBJECT: SITE VISIT – AMERICAN ELECTRIC POWER (AEP) – REUSENS HYDROELECTRIC POWER PLANT, VPDES PERMIT # VA0087114

TO: Kip Foster, Water Permits Manager - BRRO

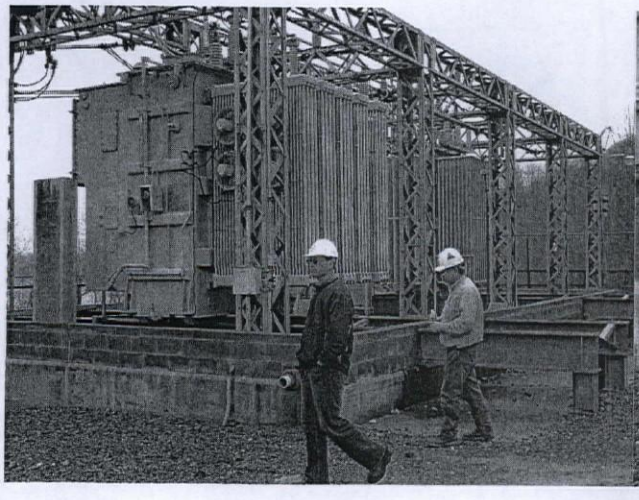
FROM: Kirk Batsel, Sr. Environmental Engineer – BRRO - Lynchburg

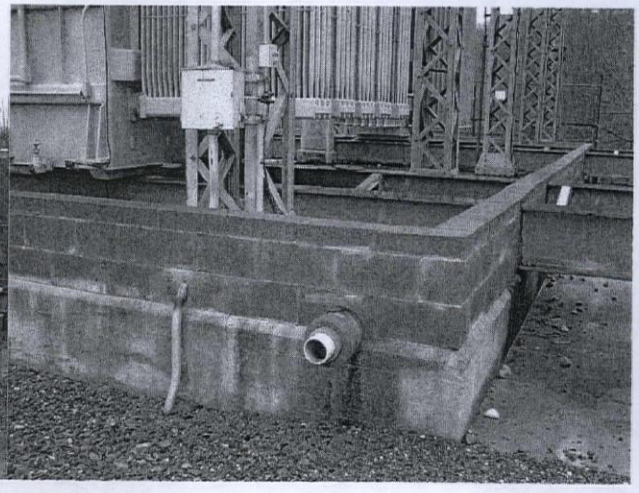
DATE: April 6, 2009

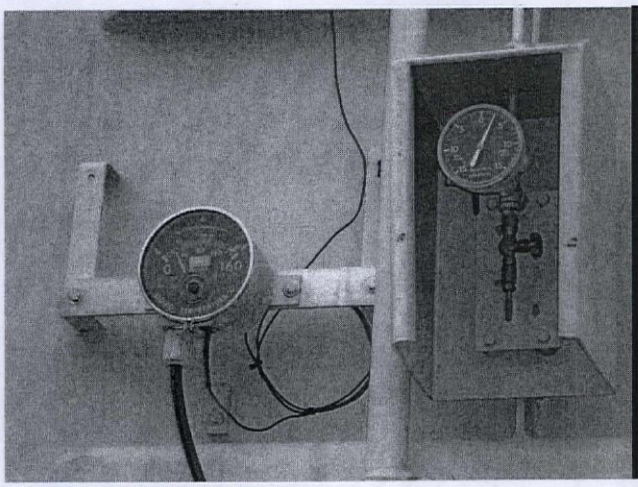
COPIES: Kevin Crider, Permit Engineer, Permit file

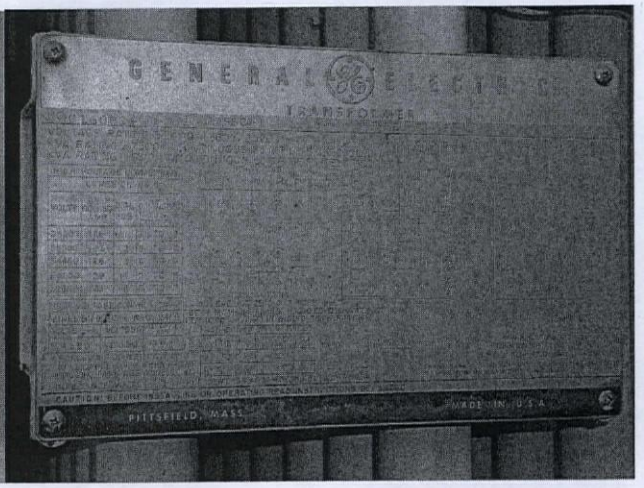
A site visit inspection was held at the subject facility on Wednesday April 1, 2009 in support of the upcoming VPDES permit reissuance. Kevin Crider and I arrived on-site at approximately 3:30 pm and subsequently met with David Agee (Station Operator - Hydro Generation). The primary purpose of the inspection was to determine the presence of transformers on the station site, to determine if stormwater discharges from the transformer area, and to better understand the layout and operation of the station. The focus on station transformers and how they may relate to discharges is in association with TMDL development concerning PCB contaminated fish tissue.

We initially observed the station transformer yard. This area is composed of a large graveled area with a cement transformer pad in the eastern corner of the yard. Two large industrial GE transformers are currently located on the transformer pad. According to Mr. Agee, both of these transformers were completely reworked in 2000. They appeared to be in good condition with no observable leaks. No PCB placarding was visible on either unit. Mr. Agee indicated that AEP could probably provide records on the status of these transformers based on the fairly recent reconditioning. The age of the large units were determined to be 1954 and 1957. The pad had previously supported 4 large transformers. A block secondary containment wall captures rainfall within the transformer pad area. A large pipe with a valve is available to control the release of captured stormwater from this containment area. However, Mr. Agee indicated that the need to discharge captured rainwater was very rare, if at all, since it is usually just allowed to evaporate.

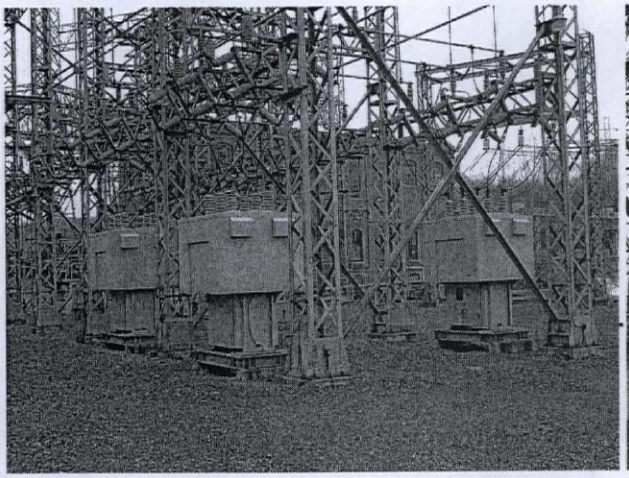


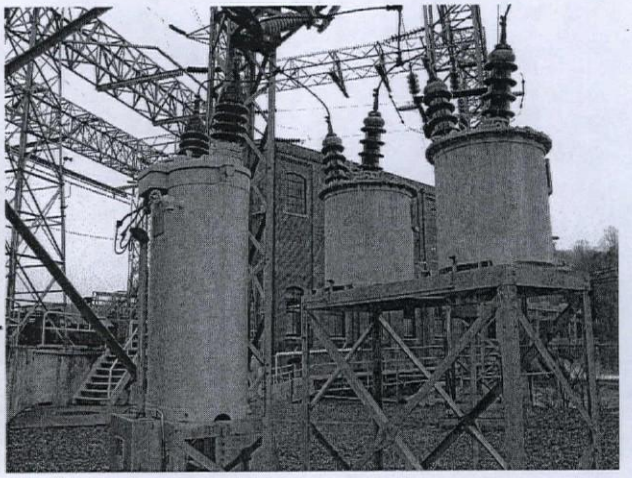




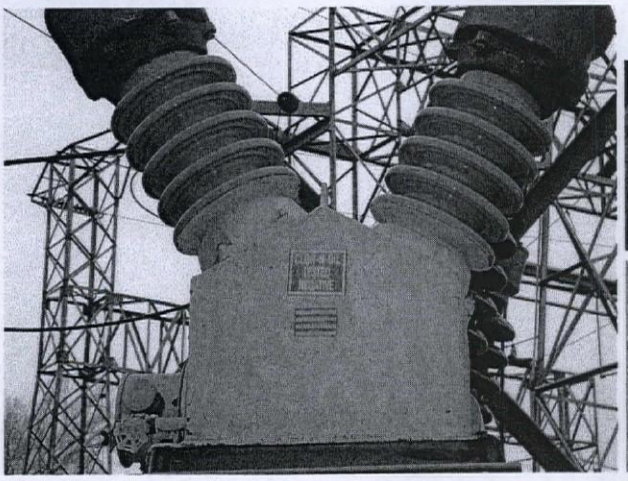


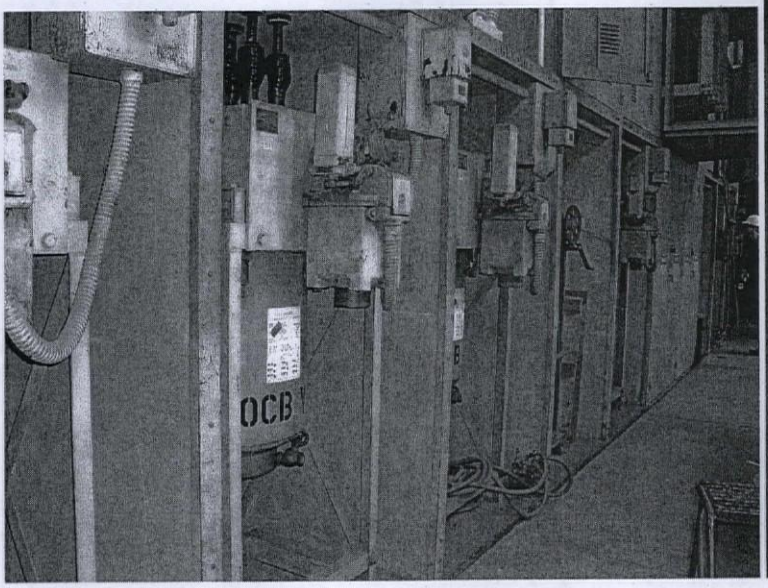
The rest of the transformer yard resembled a switchyard, and contained multiple large industrial breakers. These breakers appeared to be relatively new, and they had replaced other transformers. Several older transformers were also present in this area.

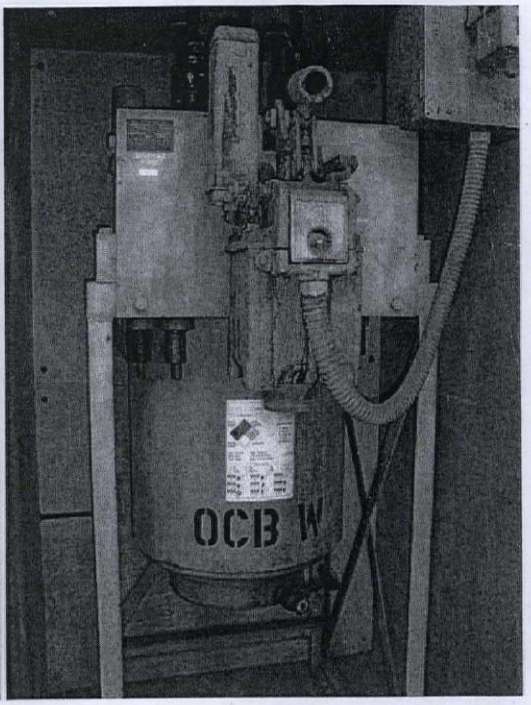




Of the older transformers in this area, one was placarded with a placard as below (Chlor-N-Oil Tested Negative). This is indicative of on-site testing using a quick hand held indicator method for PCB presence. Please refer to Attachment 1 and 2 for info on this method.

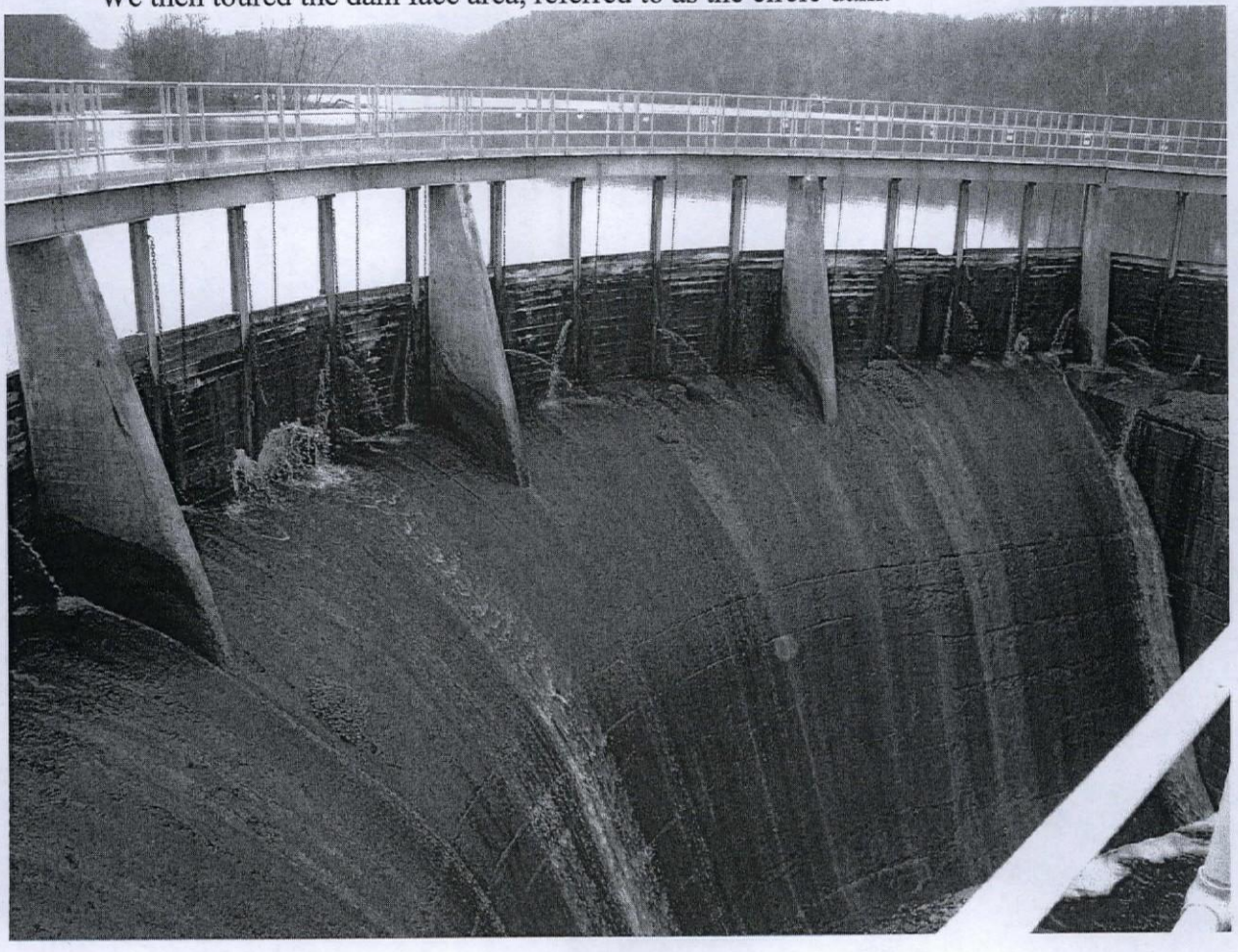




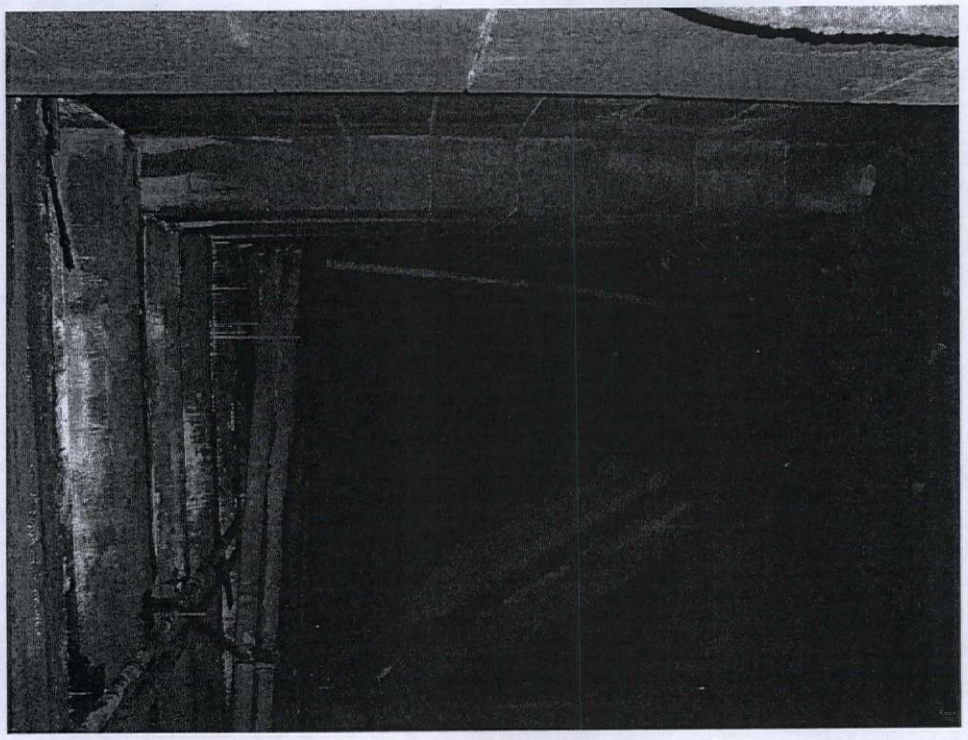


The transformers for building A were housed in a concrete floored room, with according to Mr. Agee, no floor drains. This room is below the elevation of station sump, so any leak in this area would not drain to the sump.

We then toured the dam face area, referred to as the circle dam.



Next we toured the area of the old canal. This abandoned section is actually part of the existing dam structure and a section of the cannel (like a mine tunnel) still exists but is not in use.



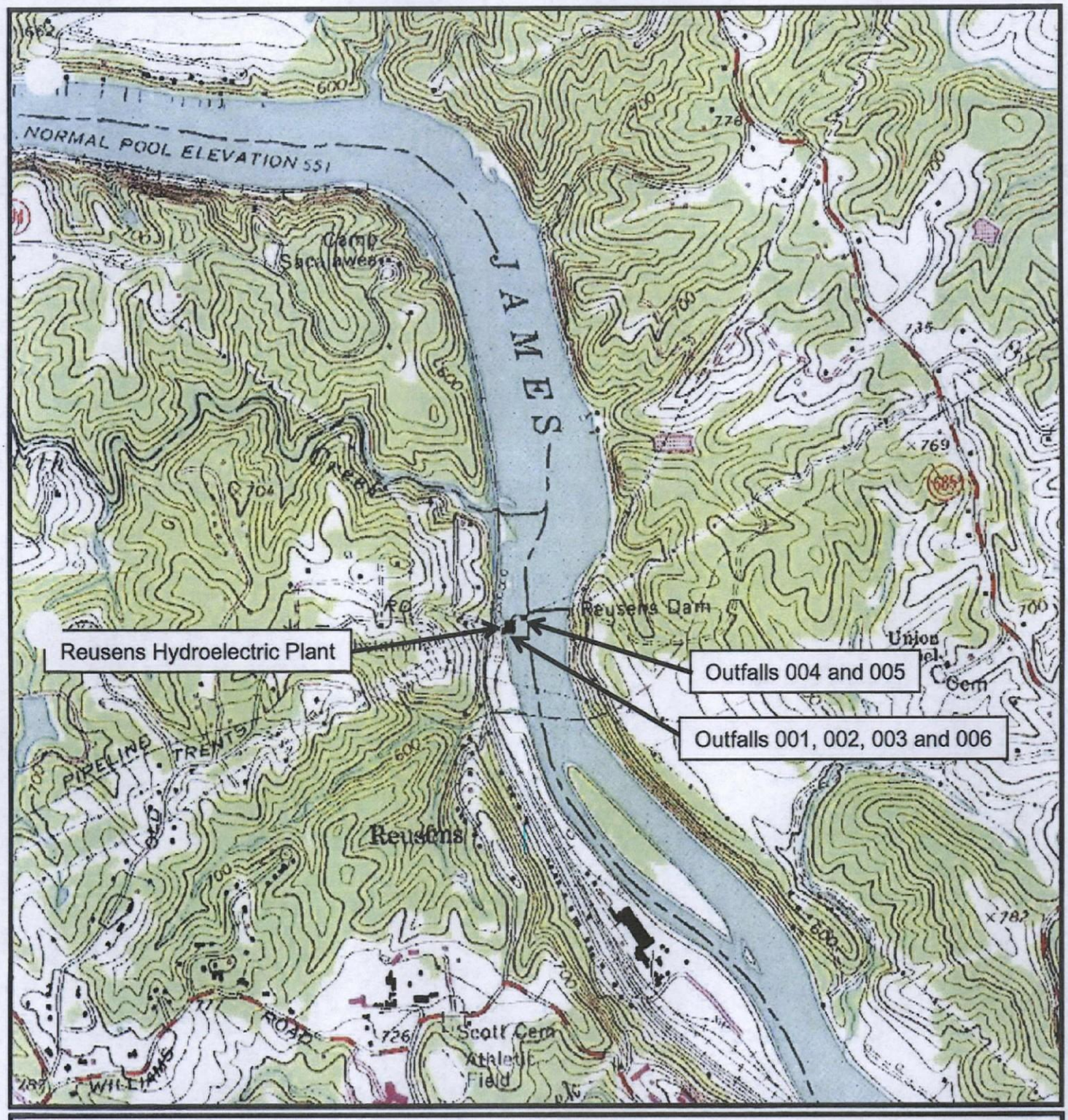
After observing this area, we ended the tour back in the transformer yard. After some discussion, we concluded the site visit. On the way back from the plant, Kevin and I observed that additional transformers may also be located in the substation that receives electricity from the station and is located on the hill adjacent to the plant.

We would like to thank Mr.Agee for his time and interest in providing the tour and answering our questions.

Attachment D

USGS Topographic Map

Figure 1


NORMAL POOL ELEVATION 551
JAMES
Reusens Dam
Reusens Hydroelectric Plant
Outfalls 004 and 005
Outfalls 001, 002, 003 and 006
Reusens
Scott Cem
Athletic Field
PIPELINE
TRENT ST
ROAD
WILLIAMS
Union Cem
N
Lynchburg, VA
Quadrangle USGS
Topographic Map
0
½
1mi
11.12.08
Appalachian Power Company
Reusens Hydroelectric Plant
VPDES Permit VA0087114
USGS Site Topographic Map
Plant Latitude 37° 27' 50"
Plant Longitude 79° 11' 08"
AEP

Attachment E

Ambient Water Quality Information

- DEQ Planning Review Memo
- 2012 Integrated Water Quality Assessment Unit Summary Report (Except)
- STORET Data (Station 2-JMS270.84)
- Endangered Species Information

Planning Statement for VPDES Permit Application Processing DEQ-SCRO

VPDES	OwnerName	Facility	County
VA0087114	American Electric Power	Reusens Hydroelectric Plant	Lynchburg

Outfall #: 001

River Basin: James River (Upper) **Receiving Stream:** James River

Subbasin: James River

Watershed Code: H03R **River Mile:** 263.63

	MGD		MGD
1Q10	256	**HF 1Q10**	496
7Q10	333	**HF7Q10**	581
30Q5	415	**HF30Q10**	704
30Q10	379	**HM**	1016

Modeling Notes

WQMP Name 9 VAC 25-720-60

Statement The facility is not inlcuded in the plan.

TMDL ID H03R-04-BAC & H03R-04-PCB

Impairment Cause E. coli & PCBs in Fish Tissue

TMDL Due Date 2008 & 2016

Completed TMDL Information

Lynchburg Bacteria TMDL - No bacteria allocation included in TMDL for this facility.

TMDL Approval Dates EPA - 12/4/07 & SWCB - 7/31/08

Amanda B Gray 7/22/13

Amanda B. Gray, Water Planning Engineer or Paula Nash, TMDL Coordinator **Date**

2012 Impaired Waters

Categories 4 and 5 by Cause Group Code

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

James River Basin

Cause Group Code: **H03R-04-PCB** **James River**

Location: The James River from Big Island dam (below Blue Ridge Parkway) downstream to the I-95 bridge James River Bridge in Richmond including its tributaries Hardware River up to Rt. 6 bridge and Slate River up the Rt. 676 bridge.

City / County: Amherst Co. Bedford Co.

Use(s): Fish Consumption

Cause(s) /
VA Category: PCB in Fish Tissue/ 5A

The rivers are considered impaired of the Fish Consumption Use due to a VDH fish consumption restriction for PCBs. No more than two meals/month of gizzard shad, carp, American eel, flathead catfish, or quillback carpsucker are recommended. Visit the VDH website for more details:
http://www.vdh.state.va.us/HHControl/fishingadvisories.asp

A portion of the segment was first listed in the 2004 segment but was expanded during the 2006 cycle based on the current condemnation (12/13/2004). The original 2016 TMDL due date was maintained.

The impairment is based on the results of DEQ's fish tissue monitoring program which indicated PCB exceedances at multiple stations including 2-JMS157.28, 2BJMS118.99, 2-JMS127.50, 2CJMS110.00 and 2-JMS258.54 with PCBs in 4 Species, 2-JMS213.00 (2005 FT/Sediment) with PCBs in 3 Species and 2-JMS176.63 (2005 FT/Sediment) with PCBs in 2 Species.

Assessment Unit / Water Name / Description	Cause Category / Name	Nested	Cycle First Listed	TMDL Schedule or EPA Approval	Size
VAW-H01R_JMS01A00 / James River / James River mainstem from the mouth of Wilderness Creek downstream to Holcomb Rock Dam.	5A PCB in Fish Tissue		2006	2016	1.34
VAW-H01R_JMS01A04 / James River / The James River from the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18") downstream to the mouth of Wilderness Creek.	5A PCB in Fish Tissue		2006	2016	0.71
VAW-H01R_JMS02A00 / James River / James River mainstem from the Georgia Pacific outfalls downstream to the upstream ending of the WQS PWS designation (37°30'08.38"/79°01'18.18")	5A PCB in Fish Tissue		2006	2016	4.03
VAW-H01R_JMS03A00 / James River / James River mainstem from the mouth of Hunting Creek downstream to the Georgia Pacific outfalls on the James River.	5A PCB in Fish Tissue		2006	2016	0.28

James River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:			**6.36**

Sources:

Source Unknown

2-JMS270.84
VAC-H03R

Collection Date Time	Depth (feet)	Hardness, Total (mg/L as $CaCO_3$)
08/18/1993 12:40	0.3	124
11/04/1993 10:50	0.3	156
02/15/1994 12:20	0.3	58
05/12/1994 12:15	0.3	60
07/10/2001 16:30	0.3	94.9
09/18/2001 15:10	0.3	137
11/20/2001 15:45	0.3	180
01/22/2002 15:30	0.3	142
03/11/2002 14:50	0	10.3
03/11/2002 14:50	0.3	357
05/23/2002 12:30	0	<10
05/23/2002 12:30	0.3	288.6
07/01/2002 14:15	0.3	147
09/16/2002 15:00	0	<10
09/16/2002 15:00	0.3	524
11/12/2002 16:00	0.3	77.1
01/28/2003 14:10	0.3	115
04/09/2003 14:44	0.3	63.2
06/26/2003 15:55	0.3	91.7
02/08/2007 10:53	0.3	116
04/24/2007 12:52	0.3	80
06/19/2007 10:50	0.3	128
08/30/2007 10:30	0.3	142
10/15/2007 14:10	0.3	164

Highlighed data are outliers and are not used in calculation of average hardness.

Mean Hardness 115 mg/L

2-JMS270.84
VAC-H03R

Collection Date Time	Temp (°C)	pH (S.U.)
01/28/2003 14:10	1.03	8.37
04/09/2003 14:44	9.21	7.81
06/26/2003 15:55	22.1	7.79
08/11/2003 13:20	23.31	7.97
10/14/2003 12:45	18.35	8.46
12/16/2003 12:45	4.7	7.68
02/03/2004 14:20	1.25	8.43
06/07/2004 13:20	20.35	7.98
08/16/2004 12:50	23.17	8.06
10/26/2004 13:35	15.45	8.4
02/09/2005 13:00	8.14	7.84
04/11/2005 14:10	16.67	8.05
06/16/2005 14:15	27.12	8.11
08/04/2005 14:30	28.23	8.05
09/27/2005 10:00	23.6	8.09
12/08/2005 14:55	4.26	7.77
02/22/2006 10:35	6	8.4
06/08/2006 16:00	23.2	7.3
06/21/2006 13:45	26.7	7.6
07/06/2006 16:20	23.8	7.6
08/02/2006 12:30	29.3	8
12/19/2006 10:30	7.5	7.6
02/08/2007 10:53	0.2	7.2
04/24/2007 12:52	16.7	7.7
06/19/2007 10:50	24.8	7.9
08/30/2007 10:30	27.7	8
10/15/2007 14:10	18.9	7.9
12/11/2007 09:42	6.6	8.2
02/12/2008 11:35	4.7	7.3
04/15/2008 12:25	14.2	7.3
06/24/2008 11:38	25.9	7.5
08/14/2008 09:35	24.7	7.9
10/23/2008 12:45	13.7	8
12/11/2008 10:40	8.2	7.4
01/05/2009 13:25	6.3	7.8
04/29/2009 11:30	19.5	7.9
06/22/2009 13:30	24	7.8
08/26/2009 11:30	26.7	7.9
10/26/2009 10:30	13.7	7.6
12/22/2009 15:00	3.1	7.3
02/04/2010 12:20	3.4	7.6
04/26/2010 12:20	17.3	8.1
06/21/2010 11:00	28.7	7.7
08/30/2010 11:31	26.2	7.6
10/19/2010 10:58	15.5	7.8
12/28/2010 10:40	2.2	7.3
02/15/2011 12:30	6.3	6.7
04/11/2011 11:20	14.3	7

90th Percentile pH	8.1 S.U.
10th Percentile pH	7.3 S.U.
90th Percentile Temp	26.7 °C
90th Percentile Temp (Jan. - May)	17.2 °C

2-JMS270.84
VAC-H03R

Collection Date Time	Temp (°C)	pH (S.U.)
06/22/2011 11:25	25.9	8
08/24/2011 11:25	25.4	7.6
10/13/2011 11:10	17.9	7.6
12/12/2011 11:40	5.9	7.6
02/13/2012 11:40	6.05	7.26
03/26/2012 11:50	14.08	7.33
05/09/2012 12:00	19.55	7.74
07/24/2012 12:00	28.82	8.08
09/06/2012 11:25	26.44	7.91
11/14/2012 14:33	9.44	8.08
01/15/2013 11:15	8.34	8.03
03/07/2013 11:15	4.97	7.97
05/08/2013 15:15	12.54	7.69
07/25/2013 16:10	25.63	7.93
09/25/2013 14:25	20.67	7.92
11/21/2013 14:40	9.63	8.12

France, Becky (DEQ)

From: Aschenbach, Ernie (DGIF)
Sent: Friday, February 07, 2014 3:00 PM
To: France, Becky (DEQ); Daub, Elleanore (DEQ); Smith, Scott (DGIF); Watson, Brian (DGIF); nhreview (DCR); Hillman, Brett
Cc: Cason, Gladys (DGIF); ProjectReview (DGIF)
Subject: ESSLog 19310; DRAFT-VPDES reissuance for the AEP Reusens Hydroelectric Plant (VA0087114) near Lynchburg, VA

Importance: High

We have reviewed the above-referenced DRAFT-VPDES reissuance for the AEP Reusens Hydroelectric Plant (VA0087114) near Lynchburg, VA. According to DEQ, permit effluent characteristics are subject to change. This facility is currently not operating because repairs and/or replacement of the turbines are needed. The projected timeline for completing the repairs required for resuming operation is not known. According to the DRAFT-Application:

- Effluent from discharges 001, 002, 003, 004, 005 consists of cooling water from intermediate guide bearings is approximately 0.1182 Million Gallons/Day (MGD) from each of these five discharges (5-discharges x 0.1182 MGD). According to the DRAFT-Application (Effluent Characteristics), THERE ARE NO LIMITATIONS OR MONITORING REQUIREMENTS FOR THESE OUTFALLS.
- Effluent from discharge 006 consists of sump overflow, generator cooling/thrusting bearing cooling water, air compressor water approximately 0.0345 MGD. According to the DRAFT-Application (Effluent Characteristics), there is no limit to the maximum flow (MGL); the maximum temperature is 32 degrees C; minimum pH is 6.0; maximum pH is 9.0.
- Another discharge is mentioned in the application (007) consisting of stormwater (THIS OUTFALL SHALL CONTAIN STORM WATER RUNOFF ONLY. THERE SHALL BE NO DISCHARGE OF PROCESS WASTEWATER FROM THIS OUTFALL); however, effluent characteristics are not provided.
- The 7Q10 of the James River in the area of these discharges is 277 MGD.

Based on the uncertainty pertaining to the future operating conditions of the facility and the potential for the DEQ permit conditions and effluent characteristics to change, we believe the information provided in the DRAFT-VPDES permit application is not sufficient for us to provide a detailed review. We offer the following preliminary review & recommendations, based on the available information.

According to our records, this facility is located in a reach of the James River designated threatened and endangered (T&E) species water for the state Threatened (ST) green floater (mussel). We recommend the applicant and DEQ continue its coordination with us as more information becomes available. After we receive updated permit information, we will review this info and provide updated recommendations, as appropriate.

Please call if you have further questions. Thanks.

Ernie Aschenbach
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
P.O. Box 11104
4010 West Broad Street
Richmond, VA 23230
Phone: (804) 367-2733
FAX: (804) 367-2427
Email: Ernie.Aschenbach@dgif.virginia.gov

From: France, Becky (DEQ)
Sent: Friday, January 24, 2014 12:42 PM
To: dgif-ESS Projects (DGIF); susan_lingenfelser@fws.gov
Subject: FW: Endangered Species Review Request for AEP Reusens Hydroelectric Plant

I have sent out the application for the reissuance of AEP Reusens Hydroelectric Plant (VA0087114). This facility is currently not operating because repairs and/or replacement of the turbines are needed. The any projected timeline for these repairs is unknown. But, the permittee wanted to have a VPDES permit in the event that repairs are made at some point in the future. I have attached a copy of a topographic map with the discharge point marked. In accordance with the MOU agreement with DEQ, please review the attached information and send an e-mail with your review comments. I have also attached a copy of the current VPDES permit for this facility. **Note that there may be changes in the reissued permit once I have drafted the new permit**. I have also attached a Coordination Form for review.

Coordination
orm for Endanger.

Becky L. France
Environmental Engineer Senior
Department of Environmental Quality
3019 Peters Creek Road
Roanoke, VA 24019
(540) 562-6793
E-mail: Becky.France@deq.virginia.gov
Web: http://www.deq.virginia.gov

France, Becky (DEQ)

From: Hillman, Brett [brett_hillman@fws.gov]
Sent: Monday, January 27, 2014 4:16 PM
To: France, Becky (DEQ)
Subject: AEP Reusens Hydroelectric Plant VA0087114

Dear Ms. France:

We have reviewed the subject project description. The following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended, and the Clean Water Act (33 U.S.C. 1251-1375, 86 Stat. 816).

Based on the project description and location, it appears that no impacts to federally listed species or designated critical habitat will occur, and we have no further comment. Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact me at 804-693-6694 ext. 156, or via email at brett_hillman@fws.gov.

Best,

Brett

Brett Hillman
Fish and Wildlife Biologist
U.S. Fish & Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Phone: 804-693-6694 ext. 156
Fax: 804-693-9032
Email: brett_hillman@fws.gov

Attachment F

Effluent Data

AEP Reusens Hydroelectric Plant
VPDES Permit No. VA0087114

Effluent Temperature (Outfall 006)

Date Due	°C
10-Feb-01	6.7
10-Mar-01	7.8
10-Apr-01	11
10-May-01	12.6
10-Jun-01	23.4
10-Jul-01	27
10-Aug-01	26.7
10-Sep-01	27.7
10-Oct-01	26.6
10-Nov-01	19.1
10-Dec-01	12.7
10-Jan-02	12.5
10-Feb-02	8.3
10-Mar-02	11.2
10-Apr-02	14.4
10-May-02	22.8
10-Jun-02	20.5
10-Jul-02	28.1
10-Aug-02	26.9
10-Sep-02	26.3
10-Oct-02	26.1
10-Nov-02	22.1
10-Dec-02	14.5
10-Jan-03	12.9
10-Feb-03	13.5
10-Mar-03	6.6
10-Apr-03	20
10-May-03	17.8
10-Aug-03	29.3
10-Sep-03	29.2
10-Feb-04	10.5
10-Mar-04	8.9
10-Apr-04	17
10-May-04	19.8
10-Jun-04	20.6
10-Jul-04	24.6
10-Aug-04	30.1
10-Nov-04	22.5
10-Feb-05	11.2
10-May-05	14.3
10-Aug-05	30.7
10-Nov-05	18.8
10-Apr-06	11.4
10-Jul-06	19.7
10-Oct-06	29.8
10-Jan-07	16.5
10-Apr-07	13.1
10-Jul-07	22.3
10-Oct-07	27.6
10-Jan-08	25.6
10-Apr-08	12
10-Jul-08	15
10-Oct-08	27
10-Jan-09	26
10-Apr-09	5
10-Oct-09	27
10-Jan-10	21
10-Apr-10	8

90th Percentile Temperature	27.7 °C
90th Percentile Temperature (Jan. - May)	22.1 °C

max	30.7 °C
min	5 °C

AEP Reusens Hydroelectric Plant
VPDES Permit No. VA0087114

Effluent Temperature (Outfall 006)

Date Due	°C
10-Jul-10	20
10-Jan-11	10
10-Apr-11	8

AEP Reusens Hydroelectric Plant
VPDES Permit No. VA0087114

Effluent pH (S.U.) (Outfall 006)

Date Due	min	max
10-Jan-03	6.69	6.69
10-Feb-03	7.46	7.46
10-Mar-03	8.29	8.29
10-Apr-03	7.08	7.08
10-May-03	7.24	7.24
10-Aug-03	7.47	7.47
10-Sep-03	7.29	7.29
10-Feb-04	7	7
10-Mar-04	7.51	7.51
10-Apr-04	7.33	7.33
10-May-04	7.12	7.12
10-Jun-04	7.29	7.29
10-Jul-04	7.18	7.18
10-Aug-04	7.68	7.68
10-Nov-04	7.55	7.55
10-Feb-05	7.14	7.14
10-May-05	7.35	7.35
10-Aug-05	7.69	7.69
10-Nov-05	7.53	7.53
10-Apr-06	7.25	7.25
10-Jul-06	6.88	6.88
10-Oct-06	6.91	6.91
10-Jan-07	7.9	7.9
10-Apr-07	7.03	7.03
10-Jul-07	7.33	7.33
10-Oct-07	7.79	7.79
10-Jan-08	8.45	8.45
10-Apr-08	7.5	7.5
10-Jul-08	7.2	7.2
10-Oct-08	7.7	7.7
10-Jan-09	7.7	7.7
10-Apr-09	8.7	8.7
10-Oct-09	7.7	7.7
10-Oct-09	7.7	7.7
10-Jan-10	8	8
10-Apr-10	7.4	7.4
10-Jul-10	7.6	7.6
10-Jan-11	8.2	8.2
10-Apr-11	8.3	8.3

90th Percentile pH	8.2	S.U.
10th Percentile pH	7.0	S.U.

max	8.7
min	6.7

AMERICAN ELECTRIC POWER Service Corp. General Laboratory
One Riverside Plaza Columbus, OH 43215 Phone (614)836-4220

WATER ANALYSIS

ANALYSIS NO.: 0888044
LOCATION: Reusens Hydro
SOURCE: Sump
DATE COLLECTED: 88/07/21
DATE COMPLETED: 88/09/15

*mg/L:			
00927	Mg	:	8.25
74010	Fe	:	0.14
*ug/L:			
01105	Al	:	<300
01097	Sb	:	<3
01002	As	:	<2
01012	Be	:	<0.2
01027	Cd	:	<0.2
01034	Cr	:	<1
01042	Cu	:	<10
01051	Pb	:	1
01055	Mn	:	35
71900	Hg	:	<0.2
01067	Ni	:	<5
01147	Se	:	<3
01077	Ag	:	<0.2
01059	Tl	:	<1
01092	Zn	:	<10

ANALYSIS BY: tea,nlr

ISSUED BY _____

COPIES TO:
A.J.Ahern/M.R.Robida/M.V. Runyon
R.J. Robinson
T.P. Mallan/ V.L. Bailey

AMERICAN ELECTRIC POWER Service Corp. General Laboratory
One Riverside Plaza Columbus, OH 43215 Phone (614)836-4220

WATER ANALYSIS

ANALYSIS NO.: 0888046
LOCATION: Reusens Hydro
SOURCE: Inlet
DATE COLLECTED: 88/07/21
DATE COMPLETED: 88/09/15

*mg/L:

00927	Mg	:	8.28
74010	Fe	:	0.15

*ug/L:

01105	Al	:	<300
01097	Sb	:	<3
01002	As	:	<2
01012	Be	:	<0.2
01027	Cd	:	<0.2
01034	Cr	:	<1
01042	Cu	:	<10
01051	Pb	:	3
01055	Mn	:	30
71900	Hg	:	<0.2
01067	Ni	:	<5
01147	Se	:	<3
01077	Ag	:	<0.2
01059	Tl	:	<1
01092	Zn	:	<10

ANALYSIS BY: tea,nlr

ISSUED BY

COPIES TO:
A.J.Ahern/M.R.Robida/M.V. Runyon
R.J. Robinson
T.P. Mallan/ V.L. Bailey

AEP Reusens Hydroelectric Plant
VA0087114

Outfall 006 (process water discharge)

Date	PCBs Total (pg/L)	
	Uncensored	Censored
4/13/2011	1172.40	1058.4

PCB Water Quality Criteria 640 pg/L

(storm water discharge)

Date	PCBs Total (pg/L)	
	Uncensored	Censored
4/13/2011	5777.50	5670.10
5/26/2011	1790.70	1724.10

Influent PCBs Total (pg/L)

Date	PCBs Total (pg/L)	
	Uncensored	Censored
4/13/2011	152.6	16.2
5/26/2011	92.4	29.3

Uncensored = raw data
Censored = blank corrected data

Attachment G

Antidegradation Baseline Information

- **Mixing Zone Output (MIXER 2.1)**
- **Antidegradation Wasteload Allocation Spreadsheet**

Mixing Zone Predictions for AEP Reusens Hydroelectric Plant

Effluent Flow = 0.036 MGD
Stream 7Q10 = 277 MGD
Stream 30Q10 = 318 MGD
Stream 1Q10 = 219 MGD
Stream slope = 0.005 ft/ft
Stream width = 660 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .7931 ft
Length = 503767.89 ft
Velocity = .8193 ft/sec
Residence Time = 7.1164 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 28.1% of the 7Q10 is used.

Mixing Zone Predictions @ 30Q10

Depth = .8616 ft
Length = 470082.33 ft
Velocity = .8658 ft/sec
Residence Time = 6.2844 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 31.82% of the 30Q10 is used.

Mixing Zone Predictions @ 1Q10

Depth = .6887 ft
Length = 566733.41 ft
Velocity = .7459 ft/sec
Residence Time = 211.0452 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .47% of the 1Q10 is used.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: AEP Reusens (outfalls 001-006) Permit No.: VA0087114

Receiving Stream: James River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	115 mg/L	1Q10 (Annual) =	219 MGD	Annual - 1Q10 Mix =	0.47 %	Mean Hardness (as CaCO3) =	115 mg/L
90% Temperature (Annual) =	26.7 deg C	7Q10 (Annual) =	277 MGD	- 7Q10 Mix =	28.1 %	90% Temp (Annual) =	27.7 deg C
90% Temperature (Wet season) =	17.2 deg C	30Q10 (Annual) =	318 MGD	- 30Q10 Mix =	31.82 %	90% Temp (Wet season) =	22.1 deg C
90% Maximum pH =	8.1 SU	1Q10 (Wet season) =	496 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	8.2 SU
10% Maximum pH =	7.3 SU	30Q10 (Wet season)	704 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	7 SU
Tier Designation (1 or 2) =	2	30Q5 =	361 MGD			Discharge Flow =	0.036 MGD
Public Water Supply (PWS) Y/N? =	y	Harmonic Mean =	1016 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	6.7E+06	9.9E+06	--	--	6.7E+01	9.9E+01	--	--	6.7E+05	9.9E+05	--	--	**6.7E+05**	**9.9E+05**
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	6.1E+04	9.3E+04	--	--	6.1E-01	9.3E-01	--	--	6.1E+03	9.3E+03	--	--	**6.1E+03**	**9.3E+03**
Acrylonitrile [C]	0	--	--	5.1E-01	2.5E+00	--	--	1.4E+04	7.1E+04	--	--	5.1E-02	2.5E-01	--	--	1.4E+03	7.1E+03	--	--	**1.4E+03**	**7.1E+03**
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	8.9E+01	--	1.4E+01	1.4E+01	7.5E-01	--	4.9E-05	5.0E-05	4.6E+03	--	1.4E+00	1.4E+00	**8.9E+01**	--	**1.4E+00**	**1.4E+00**
Ammonia-N (mg/l) (Yearly)	0	6.91E+00	9.56E-01	--	--	2.0E+02	2.7E+03	--	--	1.74E+00	2.39E-01	--	--	1.1E+04	2.1E+03	--	--	**2.0E+02**	**2.1E+03**	--	--
Ammonia-N (mg/l) (High Flow)	0	6.95E+00	1.76E+00	--	--	9.6E+04	3.5E+04	--	--	1.74E+00	4.41E-01	--	--	2.4E+04	8.6E+03	--	--	**2.4E+04**	**8.6E+03**	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	8.3E+07	4.0E+08	--	--	8.3E+02	4.0E+03	--	--	8.3E+06	4.0E+07	--	--	**8.3E+06**	**4.0E+07**
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	5.6E+04	6.4E+06	--	--	5.6E-01	6.4E+01	--	--	5.6E+03	6.4E+05	--	--	**5.6E+03**	**6.4E+05**
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	1.0E+04	3.2E+05	1.0E+05	--	8.5E+01	3.8E+01	1.0E+00	--	5.2E+05	2.9E+05	1.0E+04	--	**1.0E+04**	**2.9E+05**	**1.0E+04**	--
Barium	0	--	--	2.0E+03	--	--	--	2.0E+07	--	--	--	2.0E+02	--	--	--	2.0E+06	--	--	--	**2.0E+06**	--
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	6.2E+05	1.4E+07	--	--	2.2E+00	5.1E+01	--	--	6.2E+04	1.4E+06	--	--	**6.2E+04**	**1.4E+06**
Benzidine [C]	0	--	--	8.6E-04	2.0E-03	--	--	2.4E+01	5.6E+01	--	--	8.6E-05	2.0E-04	--	--	2.4E+00	5.6E+00	--	--	**2.4E+00**	**5.6E+00**
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
Bis2-Chloroethyl Ether [C]	0	--	--	3.0E-01	5.3E+00	--	--	8.5E+03	1.5E+05	--	--	3.0E-02	5.3E-01	--	--	8.5E+02	1.5E+04	--	--	**8.5E+02**	**1.5E+04**
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.4E+07	6.5E+08	--	--	1.4E+02	6.5E+03	--	--	1.4E+06	6.5E+07	--	--	**1.4E+06**	**6.5E+07**
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	1.2E+01	2.2E+01	--	--	3.4E+05	6.2E+05	--	--	1.2E+00	2.2E+00	--	--	3.4E+04	6.2E+04	--	--	**3.4E+04**	**6.2E+04**
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	1.2E+06	4.0E+07	--	--	4.3E+00	1.4E+02	--	--	1.2E+05	4.0E+06	--	--	**1.2E+05**	**4.0E+06**
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.5E+07	1.9E+07	--	--	1.5E+02	1.9E+02	--	--	1.5E+06	1.9E+06	--	--	**1.5E+06**	**1.9E+06**
Cadmium	0	4.6E+00	1.3E+00	5.0E+00	--	1.4E+02	2.7E+03	5.0E+04	--	1.1E+00	3.2E-01	5.0E-01	--	7.0E+03	2.4E+03	5.0E+03	--	**1.4E+02**	**2.4E+03**	**5.0E+03**	--
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	6.5E+04	4.5E+05	--	--	2.3E-01	1.6E+00	--	--	6.5E+03	4.5E+04	--	--	**6.5E+03**	**4.5E+04**
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	7.1E+01	9.3E+00	2.3E+02	2.3E+02	6.0E-01	1.1E-03	8.0E-04	8.1E-04	3.7E+03	8.3E+00	2.3E+01	2.3E+01	**7.1E+01**	**8.3E+00**	**2.3E+01**	**2.3E+01**
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	2.5E+07	5.0E+08	2.5E+09	--	2.2E+05	5.8E+04	2.5E+04	--	1.3E+09	4.4E+08	2.5E+08	--	**2.5E+07**	**4.4E+08**	**2.5E+08**	--
TRC	0	1.9E+01	1.1E+01	--	--	5.6E+02	2.4E+04	--	--	4.8E+00	2.8E+00	--	--	2.9E+04	2.1E+04	--	--	**5.6E+02**	**2.1E+04**	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.3E+06	1.6E+07	--	--	1.3E+01	1.6E+02	--	--	1.3E+05	1.6E+06	--	--	**1.3E+05**	**1.6E+06**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	1.1E+05	3.7E+06	--	--	4.0E-01	1.3E+01	--	--	1.1E+04	3.7E+05	--	--	**1.1E+04**	**3.7E+05**
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	3.4E+06	1.1E+08	--	--	3.4E+01	1.1E+03	--	--	3.4E+05	1.1E+07	--	--	**3.4E+05**	**1.1E+07**
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.0E+07	1.6E+07	--	--	1.0E+02	1.6E+02	--	--	1.0E+06	1.6E+06	--	--	**1.0E+06**	**1.6E+06**
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	8.1E+05	1.5E+06	--	--	8.1E+00	1.5E+01	--	--	8.1E+04	1.5E+05	--	--	**8.1E+04**	**1.5E+05**
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	2.5E+00	8.9E+01	--	--	2.1E-02	1.0E-02	--	--	1.3E+02	7.9E+01	--	--	**2.5E+00**	**7.9E+01**	--	--
Chromium III	0	6.4E+02	8.3E+01	--	--	1.9E+04	1.8E+05	--	--	1.6E+02	2.1E+01	--	--	9.7E+05	1.6E+05	--	--	**1.9E+04**	**1.6E+05**	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	4.7E+02	2.4E+04	--	--	4.0E+00	2.8E+00	--	--	2.4E+04	2.1E+04	--	--	**4.7E+02**	**2.1E+04**	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.0E+06	--	--	--	1.0E+01	--	--	--	1.0E+05	--	--	--	**1.0E+05**	--
Chrysene [C]	0	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	3.8E-04	1.8E-03	--	--	1.1E+01	5.1E+01	--	--	**1.1E+01**	**5.1E+01**
Copper	0	1.5E+01	1.0E+01	1.3E+03	--	4.5E+02	2.2E+04	1.3E+07	--	3.8E+00	2.5E+00	1.3E+02	--	2.3E+04	1.9E+04	1.3E+06	--	**4.5E+02**	**1.9E+04**	**1.3E+06**	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	6.5E+02	1.1E+04	1.4E+06	1.6E+08	5.5E+00	1.3E+00	1.4E+01	1.6E+03	3.3E+04	1.0E+04	1.4E+05	1.6E+07	**6.5E+02**	**1.0E+04**	**1.4E+05**	**1.6E+07**
DDD [C]	0	--	--	3.1E-03	3.1E-03	--	--	8.7E+01	8.7E+01	--	--	3.1E-04	3.1E-04	--	--	8.7E+00	8.7E+00	--	--	**8.7E+00**	**8.7E+00**
DDE [C]	0	--	--	2.2E-03	2.2E-03	--	--	6.2E+01	6.2E+01	--	--	2.2E-04	2.2E-04	--	--	6.2E+00	6.2E+00	--	--	**6.2E+00**	**6.2E+00**
DDT [C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	3.3E+01	2.2E+00	6.2E+01	6.2E+01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	1.7E+03	1.9E+00	6.2E+00	6.2E+00	**3.3E+01**	**1.9E+00**	**6.2E+00**	**6.2E+00**
Demeton	0	--	1.0E-01	--	--	--	2.2E+02	--	--	--	2.5E-02	--	--	--	1.9E+02	--	--	--	**1.9E+02**	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	5.0E+00	3.7E+02	--	--	4.3E-02	4.3E-02	--	--	2.6E+02	3.3E+02	--	--	**5.0E+00**	**3.3E+02**	--	--
Dibenz(a,h)anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	4.2E+06	1.3E+07	--	--	4.2E+01	1.3E+02	--	--	4.2E+05	1.3E+06	--	--	**4.2E+05**	**1.3E+06**
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	3.2E+06	9.6E+06	--	--	3.2E+01	9.6E+01	--	--	3.2E+05	9.6E+05	--	--	**3.2E+05**	**9.6E+05**
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	6.3E+05	1.9E+06	--	--	6.3E+00	1.9E+01	--	--	6.3E+04	1.9E+05	--	--	**6.3E+04**	**1.9E+05**
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	5.9E+03	7.9E+03	--	--	2.1E-02	2.8E-02	--	--	5.9E+02	7.9E+02	--	--	**5.9E+02**	**7.9E+02**
Dichlorobromomethane [C]	0	--	--	5.5E+00	1.7E+02	--	--	1.6E+05	4.8E+06	--	--	5.5E-01	1.7E+01	--	--	1.6E+04	4.8E+05	--	--	**1.6E+04**	**4.8E+05**
1,2-Dichloroethane [C]	0	--	--	3.8E+00	3.7E+02	--	--	1.1E+05	1.0E+07	--	--	3.8E-01	3.7E+01	--	--	1.1E+04	1.0E+06	--	--	**1.1E+04**	**1.0E+06**
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	3.3E+06	7.1E+07	--	--	3.3E+01	7.1E+02	--	--	3.3E+05	7.1E+06	--	--	**3.3E+05**	**7.1E+06**
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.4E+06	1.0E+08	--	--	1.4E+01	1.0E+03	--	--	1.4E+05	1.0E+07	--	--	**1.4E+05**	**1.0E+07**
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	7.7E+05	2.9E+06	--	--	7.7E+00	2.9E+01	--	--	7.7E+04	2.9E+05	--	--	**7.7E+04**	**2.9E+05**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.0E+06	--	--	--	1.0E+01	--	--	--	1.0E+05	--	--	--	**1.0E+05**	--
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	1.4E+05	4.2E+06	--	--	5.0E-01	1.5E+01	--	--	1.4E+04	4.2E+05	--	--	**1.4E+04**	**4.2E+05**
1,3-Dichloropropene [C]	0	--	--	3.4E+00	2.1E+02	--	--	9.6E+04	5.9E+06	--	--	3.4E-01	2.1E+01	--	--	9.6E+03	5.9E+05	--	--	**9.6E+03**	**5.9E+05**
Dieldrin [C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	7.1E+00	1.2E+02	1.5E+01	1.5E+01	6.0E-02	1.4E-02	5.2E-05	5.4E-05	3.7E+02	1.1E+02	1.5E+00	1.5E+00	**7.1E+00**	**1.1E+02**	**1.5E+00**	**1.5E+00**
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.7E+08	4.4E+08	--	--	1.7E+03	4.4E+03	--	--	1.7E+07	4.4E+07	--	--	**1.7E+07**	**4.4E+07**
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	3.8E+06	8.5E+06	--	--	3.8E+01	8.5E+01	--	--	3.8E+05	8.5E+05	--	--	**3.8E+05**	**8.5E+05**
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.7E+09	1.1E+10	--	--	2.7E+04	1.1E+05	--	--	2.7E+08	1.1E+09	--	--	**2.7E+08**	**1.1E+09**
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.0E+07	4.5E+07	--	--	2.0E+02	4.5E+02	--	--	2.0E+06	4.5E+06	--	--	**2.0E+06**	**4.5E+06**
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	6.9E+05	5.3E+07	--	--	6.9E+00	5.3E+02	--	--	6.9E+04	5.3E+06	--	--	**6.9E+04**	**5.3E+06**
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.3E+05	2.8E+06	--	--	1.3E+00	2.8E+01	--	--	1.3E+04	2.8E+05	--	--	**1.3E+04**	**2.8E+05**
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	3.4E+01	--	--	3.1E+04	9.6E+05	--	--	1.1E-01	3.4E+00	--	--	3.1E+03	9.6E+04	--	--	**3.1E+03**	**9.6E+04**
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	5.0E-04	5.1E-04	--	--	5.0E-09	5.1E-09	--	--	5.0E-05	5.1E-05	--	--	**5.0E-05**	**5.1E-05**
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	1.0E+04	5.6E+04	--	--	3.6E-02	2.0E-01	--	--	1.0E+03	5.6E+03	--	--	**1.0E+03**	**5.6E+03**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	6.5E+00	1.2E+02	6.2E+05	8.9E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	3.3E+02	1.1E+02	6.2E+04	8.9E+04	**6.5E+00**	**1.1E+02**	**6.2E+04**	**8.9E+04**
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	6.5E+00	1.2E+02	6.2E+05	8.9E+05	5.5E-02	1.4E-02	6.2E+00	8.9E+00	3.3E+02	1.1E+02	6.2E+04	8.9E+04	**6.5E+00**	**1.1E+02**	**6.2E+04**	**8.9E+04**
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	6.5E+00	1.2E+02	--	--	5.5E-02	1.4E-02	--	--	3.3E+02	1.1E+02	--	--	**6.5E+00**	**1.1E+02**	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	6.2E+05	8.9E+05	--	--	6.2E+00	8.9E+00	--	--	6.2E+04	8.9E+04	--	--	**6.2E+04**	**8.9E+04**
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	2.5E+00	7.8E+01	5.9E+02	6.0E+02	2.2E-02	9.0E-03	5.9E-03	6.0E-03	1.3E+02	6.9E+01	5.9E+01	6.0E+01	**2.5E+00**	**6.9E+01**	**5.9E+01**	**6.0E+01**
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	2.9E+03	3.0E+03	--	--	2.9E-02	3.0E-02	--	--	2.9E+02	3.0E+02	--	--	**2.9E+02**	**3.0E+02**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+06	2.1E+07	--	--	5.3E+01	2.1E+02	--	--	5.3E+05	2.1E+06	--	--	**5.3E+05**	**2.1E+06**
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+06	1.4E+06	--	--	1.3E+01	1.4E+01	--	--	1.3E+05	1.4E+05	--	--	**1.3E+05**	**1.4E+05**
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+07	5.3E+07	--	--	1.1E+02	5.3E+02	--	--	1.1E+06	5.3E+06	--	--	**1.1E+06**	**5.3E+06**
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+06	--	--	--	5.0E+01	--	--	--	5.0E+05	--	--	--	**5.0E+05**	--
Guthion	0	--	1.0E-02	--	--	--	2.2E+01	--	--	--	2.5E-03	--	--	--	1.9E+01	--	--	--	**1.9E+01**	--	--
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	1.5E+01	8.2E+00	2.2E+01	2.2E+01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	7.9E+02	7.3E+00	2.2E+00	2.2E+00	**1.5E+01**	**7.3E+00**	**2.2E+00**	**2.2E+00**
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	1.5E+01	8.2E+00	1.1E+01	1.1E+01	1.3E-01	9.5E-04	3.9E-05	3.9E-05	7.9E+02	7.3E+00	1.1E+00	1.1E+00	**1.5E+01**	**7.3E+00**	**1.1E+00**	**1.1E+00**
Hexachlorobenzene [C]	0	--	--	2.8E-03	2.9E-03	--	--	7.9E+01	8.2E+01	--	--	2.8E-04	2.9E-04	--	--	7.9E+00	8.2E+00	--	--	**7.9E+00**	**8.2E+00**
Hexachlorobutadiene [C]	0	--	--	4.4E+00	1.8E+02	--	--	1.2E+05	5.1E+06	--	--	4.4E-01	1.8E+01	--	--	1.2E+04	5.1E+05	--	--	**1.2E+04**	**5.1E+05**
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	2.6E-02	4.9E-02	--	--	7.3E+02	1.4E+03	--	--	2.6E-03	4.9E-03	--	--	7.3E+01	1.4E+02	--	--	**7.3E+01**	**1.4E+02**
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	9.1E-02	1.7E-01	--	--	2.6E+03	4.8E+03	--	--	9.1E-03	1.7E-02	--	--	2.6E+02	4.8E+02	--	--	**2.6E+02**	**4.8E+02**
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	2.8E+01	--	2.8E+04	5.1E+04	2.4E-01	--	9.8E-02	1.8E-01	1.4E+03	--	2.8E+03	5.1E+03	**2.8E+01**	--	**2.8E+03**	**5.1E+03**
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+05	1.1E+07	--	--	4.0E+00	1.1E+02	--	--	4.0E+04	1.1E+06	--	--	**4.0E+04**	**1.1E+06**
Hexachloroethane [C]	0	--	--	1.4E+01	3.3E+01	--	--	4.0E+05	9.3E+05	--	--	1.4E+00	3.3E+00	--	--	4.0E+04	9.3E+04	--	--	**4.0E+04**	**9.3E+04**
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	4.3E+03	--	--	--	5.0E-01	--	--	--	3.8E+03	--	--	--	**3.8E+03**	--	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	1.1E+03	5.1E+03	--	--	3.8E-03	1.8E-02	--	--	1.1E+02	5.1E+02	--	--	**1.1E+02**	**5.1E+02**
Iron	0	--	--	3.0E+02	--	--	--	3.0E+06	--	--	--	3.0E+01	--	--	--	3.0E+05	--	--	--	**3.0E+05**	--
Isophorone [C]	0	--	--	3.5E+02	9.6E+03	--	--	9.9E+06	2.7E+08	--	--	3.5E+01	9.6E+02	--	--	9.9E+05	2.7E+07	--	--	**9.9E+05**	**2.7E+07**
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	**0.0E+00**	--	--
Lead	0	1.4E+02	1.6E+01	1.5E+01	--	4.2E+03	3.5E+04	1.5E+05	--	3.6E+01	4.0E+00	1.5E+00	--	2.2E+05	3.1E+04	1.5E+04	--	**4.2E+03**	**3.1E+04**	**1.5E+04**	--
Malathion	0	--	1.0E-01	--	--	--	2.2E+02	--	--	--	2.5E-02	--	--	--	1.9E+02	--	--	--	**1.9E+02**	--	--
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+05	--	--	--	5.0E+00	--	--	--	5.0E+04	--	--	--	**5.0E+04**	--
Mercury	0	1.4E+00	7.7E-01	--	--	4.1E+01	1.7E+03	--	--	3.5E-01	1.9E-01	--	--	2.1E+03	1.5E+03	--	--	**4.1E+01**	**1.5E+03**	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+05	1.5E+07	--	--	4.7E+00	1.5E+02	--	--	4.7E+04	1.5E+06	--	--	**4.7E+04**	**1.5E+06**
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	1.3E+06	1.7E+08	--	--	4.6E+00	5.9E+02	--	--	1.3E+05	1.7E+07	--	--	**1.3E+05**	**1.7E+07**
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	6.5E+01	1.0E+06	--	--	7.5E-03	1.0E+01	--	--	5.8E+01	1.0E+05	--	--	**5.8E+01**	**1.0E+05**	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	**0.0E+00**	--	--
Nickel	0	2.1E+02	2.3E+01	6.1E+02	4.6E+03	6.1E+03	4.9E+04	6.1E+06	4.6E+07	5.1E+01	5.7E+00	6.1E+01	4.6E+02	3.1E+05	4.4E+04	6.1E+05	4.6E+06	**6.1E+03**	**4.4E+04**	**6.1E+05**	**4.6E+06**
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+08	--	--	--	1.0E+03	--	--	--	1.0E+07	--	--	--	**1.0E+07**	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+05	6.9E+06	--	--	1.7E+00	6.9E+01	--	--	1.7E+04	6.9E+05	--	--	**1.7E+04**	**6.9E+05**
N-Nitrosodimethylamine [C]	0	--	--	6.9E-03	3.0E+01	--	--	1.9E+02	8.5E+05	--	--	6.9E-04	3.0E+00	--	--	1.9E+01	8.5E+04	--	--	**1.9E+01**	**8.5E+04**
N-Nitrosodiphenylamine [C]	0	--	--	3.3E+01	6.0E+01	--	--	9.3E+05	1.7E+06	--	--	3.3E+00	6.0E+00	--	--	9.3E+04	1.7E+05	--	--	**9.3E+04**	**1.7E+05**
N-Nitrosodi-n-propylamine [C]	0	--	--	5.0E-02	5.1E+00	--	--	1.4E+03	1.4E+05	--	--	5.0E-03	5.1E-01	--	--	1.4E+02	1.4E+04	--	--	**1.4E+02**	**1.4E+04**
Nonylphenol	0	2.8E+01	6.6E+00	--	--	8.3E+02	1.4E+04	--	--	7.0E+00	1.7E+00	--	--	4.3E+04	1.3E+04	--	--	**8.3E+02**	**1.3E+04**	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	1.9E+00	2.8E+01	--	--	1.6E-02	3.3E-03	--	--	9.9E+01	2.5E+01	--	--	**1.9E+00**	**2.5E+01**	--	--
PCB Total [C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	3.0E+01	1.8E+01	1.8E+01	--	3.5E-03	6.4E-05	6.4E-05	--	2.7E+01	1.8E+00	1.8E+00	--	**2.7E+01**	**1.8E+00**	**1.8E+00**
Pentachlorophenol [C]	0	1.2E+01	9.0E+00	2.7E+00	3.0E+01	3.4E+02	2.0E+04	7.6E+04	8.5E+05	2.9E+00	2.3E+00	2.7E-01	3.0E+00	1.8E+04	1.7E+04	7.6E+03	8.5E+04	**3.4E+02**	**1.7E+04**	**7.6E+03**	**8.5E+04**
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.0E+08	8.6E+09	--	--	1.0E+03	8.6E+04	--	--	1.0E+07	8.6E+08	--	--	**1.0E+07**	**8.6E+08**
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+06	4.0E+07	--	--	8.3E+01	4.0E+02	--	--	8.3E+05	4.0E+06	--	--	**8.3E+05**	**4.0E+06**
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.5E+05	--	--	--	1.5E+00	--	--	--	1.5E+04	--	--	--	**1.5E+04**	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+04	4.0E+04	--	--	4.0E-01	4.0E-01	--	--	4.0E+03	4.0E+03	--	--	**4.0E+03**	**4.0E+03**
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.0E+04	--	--	--	5.0E-01	--	--	--	5.0E+03	--	--	--	**5.0E+03**	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.0E+05	--	--	--	3.0E+00	--	--	--	3.0E+04	--	--	--	**3.0E+04**	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	5.9E+02	1.1E+04	1.7E+06	4.2E+07	5.0E+00	1.3E+00	1.7E+01	4.2E+02	3.0E+04	9.6E+03	1.7E+05	4.2E+06	**5.9E+02**	**9.6E+03**	**1.7E+05**	**4.2E+06**
Silver	0	4.4E+00	--	--	--	1.3E+02	--	--	--	1.1E+00	--	--	--	6.7E+03	--	--	--	**1.3E+02**	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+09	--	--	--	2.5E+04	--	--	--	2.5E+08	--	--	--	**2.5E+08**	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	4.8E+04	1.1E+06	--	--	1.7E-01	4.0E+00	--	--	4.8E+03	1.1E+05	--	--	**4.8E+03**	**1.1E+05**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	1.9E+05	9.3E+05	--	--	6.9E-01	3.3E+00	--	--	1.9E+04	9.3E+04	--	--	**1.9E+04**	**9.3E+04**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.4E+03	4.7E+03	--	--	2.4E-02	4.7E-02	--	--	2.4E+02	4.7E+02	--	--	**2.4E+02**	**4.7E+02**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.1E+06	6.0E+07	--	--	5.1E+01	6.0E+02	--	--	5.1E+05	6.0E+06	--	--	**5.1E+05**	**6.0E+06**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+09	--	--	--	5.0E+04	--	--	--	5.0E+08	--	--	--	**5.0E+08**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	2.2E+01	4.3E-01	7.9E+01	7.9E+01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.1E+03	3.8E-01	7.9E+00	7.9E+00	**2.2E+01**	**3.8E-01**	**7.9E+00**	**7.9E+00**
Tributyltin	0	4.6E-01	7.2E-02	--	--	1.4E+01	1.6E+02	--	--	1.2E-01	1.8E-02	--	--	7.0E+02	1.4E+02	--	--	**1.4E+01**	**1.4E+02**	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.5E+05	7.0E+05	--	--	3.5E+00	7.0E+00	--	--	3.5E+04	7.0E+04	--	--	**3.5E+04**	**7.0E+04**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	1.7E+05	4.5E+06	--	--	5.9E-01	1.6E+01	--	--	1.7E+04	4.5E+05	--	--	**1.7E+04**	**4.5E+05**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	7.1E+05	8.5E+06	--	--	2.5E+00	3.0E+01	--	--	7.1E+04	8.5E+05	--	--	**7.1E+04**	**8.5E+05**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	4.0E+05	6.8E+05	--	--	1.4E+00	2.4E+00	--	--	4.0E+04	6.8E+04	--	--	**4.0E+04**	**6.8E+04**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.0E+05	--	--	--	5.0E+00	--	--	--	5.0E+04	--	--	--	**5.0E+04**	--
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	7.1E+03	6.8E+05	--	--	2.5E-02	2.4E+00	--	--	7.1E+02	6.8E+04	--	--	**7.1E+02**	**6.8E+04**
Zinc	0	1.3E+02	1.3E+02	7.4E+03	2.6E+04	3.9E+03	2.9E+05	7.4E+07	2.6E+08	3.3E+01	3.3E+01	7.4E+02	2.6E+03	2.0E+05	2.6E+05	7.4E+06	2.6E+07	**3.9E+03**	**2.6E+05**	**7.4E+06**	**2.6E+07**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	5.6E+03
Arsenic	4.0E+03
Barium	2.0E+06
Cadmium	5.4E+01
Chromium III	7.6E+03
Chromium VI	1.9E+02
Copper	1.8E+02
Iron	3.0E+05
Lead	1.7E+03
Manganese	5.0E+04
Mercury	1.7E+01
Nickel	2.4E+03
Selenium	2.4E+02
Silver	5.2E+01
Zinc	1.6E+03

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.036 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD 0.036

	Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	1.029	496.000	1.065	496.036
7Q10	77.837	N/A	77.873	N/A
30Q10	101.188	704.000	101.224	704.036
30Q5	361.000	N/A	361.036	N/A
Harm. Mean	1016.000	N/A	1016.036	N/A
Annual Avg.	0.000	N/A	0.036	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	26.734	17.200
30Q10 90th% Temp. Mix (deg C)	26.700	17.200
1Q10 90th% pH Mix (SU)	8.103	8.100
30Q10 90th% pH Mix (SU)	8.100	8.100
1Q10 10th% pH Mix (SU)	7.286	N/A
7Q10 10th% pH Mix (SU)	7.300	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3)	115.0	115.0
7Q10 Hardness (mg/L as CaCO3)	115.0	115.0

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.103
(7.204 - pH)	-0.899
(pH - 7.204)	0.899
Trout Present Criterion (mg N/l	4.614
Trout Absent Criterion (mg N/L	6.908
Trout Present?	n
Effective Criterion (mg N/L)	6.908

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	26.700
90th Percentile pH (SU)	8.100
MIN	1.299
MAX	26.700
(7.688 - pH)	-0.412
(pH - 7.688)	0.412
Early LS Present Criterion (mg N	0.956
Early LS Absent Criterion (mg N/	0.956
Early Life Stages Present?	y
Effective Criterion (mg N/L)	0.956

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.100
(7.204 - pH)	-0.896
(pH - 7.204)	0.896
Trout Present Criterion (mg N/l	4.641
Trout Absent Criterion (mg N/L	6.948
Trout Present?	n
Effective Criterion (mg N/L)	6.948

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	17.200
90th Percentile pH (SU)	8.100
MIN	2.398
MAX	17.200
(7.688 - pH)	-0.412
(pH - 7.688)	0.412
Early LS Present Criterion (mg N	1.764
Early LS Absent Criterion (mg N/	1.764
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.764

0.036 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD 0.036

	100% Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	219.000	496.000	219.036	496.036
7Q10	277.000	N/A	277.036	N/A
30Q10	318.000	704.000	318.036	704.036
30Q5	361.000	N/A	361.036	N/A
Harm. Mean	1016.000	N/A	1016.036	N/A
Annual Avg.	0.000	N/A	0.036	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	26.700	17.200
30Q10 90th% Temp. Mix (deg C)	26.700	17.200
1Q10 90th% pH Mix (SU)	8.100	8.100
30Q10 90th% pH Mix (SU)	8.100	8.100
1Q10 10th% pH Mix (SU)	7.300	N/A
7Q10 10th% pH Mix (SU)	7.300	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3) =	115.000	115.000
7Q10 Hardness (mg/L as CaCO3) =	115.000	115.000

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.100
(7.204 - pH)	-0.896
(pH - 7.204)	0.896
Trout Present Criterion (mg N/l	4.640
Trout Absent Criterion (mg N/L	6.948
Trout Present?	n
Effective Criterion (mg N/L)	6.948

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	26.700
90th Percentile pH (SU)	8.100
MIN	1.299
MAX	26.700
(7.688 - pH)	-0.412
(pH - 7.688)	0.412
Early LS Present Criterion (mg N	0.956
Early LS Absent Criterion (mg N/	0.956
Early Life Stages Present?	y
Effective Criterion (mg N/L)	0.956

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.100
(7.204 - pH)	-0.896
(pH - 7.204)	0.896
Trout Present Criterion (mg N/l	4.641
Trout Absent Criterion (mg N/L	6.948
Trout Present?	n
Effective Criterion (mg N/L)	6.948

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	17.200
90th Percentile pH (SU)	8.100
MIN	2.398
MAX	17.200
(7.688 - pH)	-0.412
(pH - 7.688)	0.412
Early LS Present Criterion (mg N	1.764
Early LS Absent Criterion (mg N/	1.764
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.764

Attachment H

NPDES Permit Rating Worksheet

NPDES PERMIT RATING WORK SHEET

NPDES NO. VA0087114

☐ Regular Addition
☐ DiscretionaryAddition
☐ Score change, but no status change
☐ Deletion

Facility Name: **Reusens Hydroelectric Plan**

City: Lynchburg

Receiving Water: James River

Reach Number: _____

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?
1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (stop here) ■ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (stop here)
■ NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 4911 Other SIC Codes: _____
Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7.	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☐ 9.	9	45
			■ 6.	6	30	☐ 10.	10	50

Code Number Checked: 6

Total Points Factor 1: 30

FACTOR 2: Flow/Stream Flow Volume (*Complete either Section A or Section B; check only one)*

Section A ☐ Wastewater Flow Only Considered

Wastewater Type (See Instructions)		Code	Points
Type I: Flow < 5 MGD	☐	11	0
Flow 5 to 10 MGD	☐	12	10
Flow > 10 to 50 MGD	☐	13	20
Flow > 50 MGD	☐	14	30
Type II: Flow < 1 MGD	☐	21	10
Flow 1 to 5 MGD	☐	22	20
Flow > 5 to 10 MGD	☐	23	30
Flow > 10 MGD	☐	24	50
Type III: Flow < 1 MGD	☐	31	0
Flow 1 to 5 MGD	☐	32	10
Flow > 5 to 10 MGD	☐	33	20
Flow > 10 MGD	☐	34	30

Section B ☐ Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	< 10 %	☐	41	0
	10 % to < 50 %	☐	42	10
	> 50 %	☐	43	20
Type II:	< 10 %	■	51	0
	10 % to <50 %	☐	52	20
	> 50 %	☐	53	30

Code Checked from Section A or B: 51
Total Points Factor 2: 0

FACTOR 3: Conventional Pollutants NPDES NO: VA0087114

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) ☐ BOD ☐ COD ☐ Other:_____

			Code	*Points*
Permit Limits: (check one)	☐	< 100 lbs/day	1	0
	☐	100 to 1000 lbs/day	2	5
	☐	> 1000 to 3000 lbs/day	3	15
	☐	> 3000 lbs/day	4	20

Code Checked: _NA__

Points Scored: __0__

B. Total Suspended Solids (TSS)

			Code	*Points*
Permit Limits: (check one)	■	< 100 lbs/day	1	0
	☐	100 to 1000 lbs/day	2	5
	☐	> 1000 to 5000 lbs/day	3	15
	☐	> 5000 lbs/day	4	20

Code Checked: __1__

Points Scored: __0__

C. Nitrogen Pollutant: (check one) ☐ Ammonia ☐ Other: _____

		Nitrogen Equivalent	*Code*	*Points*
Permit Limits: (check one)	☐	< 300 lbs/day	1	0
	☐	300 to 1000 lbs/day	2	5
	☐	> 1000 to 3000 lbs/day	3	15
	☐	> 3000 lbs/day	4	20

Code Checked: __NA_

Points Scored: __0__

Total Points Factor 3: __0__

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

■ YES (If yes, check toxicity potential number below)

☐ NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column ☐ check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☐ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			■ 6.	6	10	☐ 10.	10	30

Code Number Checked: _6_

Total Points Factor 4: __10__

FACTOR 5: Water Quality Factors

NPDES NO. VA0087114

A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:

		Code	Points
☒	Yes	1	10
☐	No	2	0

B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

		Code	Points
☒	Yes	1	0
☐	No	2	5

C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

		Code	Points
☐	Yes	1	10
☒	No	2	0

Code Number Checked: A 1 B 1 C 2

Points Factor 5: A 10 + B 0 + C 0 = 10 TOTAL

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from Factor 2): 51

Enter the multiplication factor that corresponds to the flow code: 0.10

Check appropriate facility HPRI Code (from PCS):

	HPRI#	*Code*	*HPRI Score*
☐	1	1	20
☐	2	2	0
☐	3	3	30
☒	4	4	0
☐	5	5	20

HPRI code checked:

Flow Code	*Multiplication Factor*
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

Base Score: (HPRI Score) 0 X (Multiplication Factor) 0.1 = 0 (TOTAL POINTS)

B. Additional Points ☐ NEP Program
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
☐ Yes	1	10
☒ No	2	0

C. Additional Points ☐ Great Lakes Area of Concern
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)

	Code	Points
☐ Yes	1	10
☒ No	2	0

Code Number Checked: A 4 B 2 C 2

Points Factor 6: A 0 + B 0 + C 0 = 0 TOTAL

SCORE SUMMARY NPDES NO. VA0087114

Factor	Description	Total Points
1	Toxic Pollutant Potential	30
2	Flows/Streamflow Volume	0
3	Conventional Pollutants	0
4	Public Health Impacts	10
5	Water Quality Factors	10
6	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	50

S1. Is the total score equal to or greater than 80? ☐ Yes (Facility is a major) ☒ No

S2. If the answer to the above questions is no, would you like this facility to be a discretionary major? NA

☐ No

☐ Yes (Add 500 points to the above score and provide reason below:

Reason:

NEW SCORE: 50

OLD SCORE: 0

Becky L. France
Permit Reviewer's Name

(540) 562-6700
Phone Number

1/2/2013
Date

Attachment I

Public Notice and Response to Comments

France, Becky (DEQ)

From: France, Becky (DEQ)
Sent: Tuesday, May 20, 2014 4:42 PM
To: 'Lindsey G Forhan'
Cc: 'Jonathan M Magalski'; Edwards, Susan (DEQ); Batsel, Kirk (DEQ); Foster, Kip (DEQ)
Subject: RE: VA0087114 Reissuance
Attachments: Permit Part I and II Reusens 2014 6.doc

I have reviewed your comments and have addressed your comments as follows:

1. Cooling Water and Boiler Additives Special Condition: Thank you for catching the repeated language and revising the special condition to make it more specific to the facility. I have made the corrections to this special condition as requested.

2. Material Handling/Storage: You are correct that this special condition is connected with the Best Management Practices Plan so it seems appropriate to reference the plan. So, I have changed the language to read "except as authorized and in compliance with the Best Management Practice Plan". As a standard special condition it has been included and it serves to clarify the requirement to store materials properly.

3. Closure Plan: For the closure plan requirements I have included the term "where applicable" to clarify that a closure plan would only address what is applicable to this facility. In the event that the facility or parts of it were formally closed, residuals in the sump and any debris would need to be handled. Proper disposal of potentially contaminated residual materials is especially important.

4. Upper James River PCB TMDL Requirements: The PCB monitoring required in the permit is to be used for the TMDL implementation and the permit reissuance application. The language "exceedances of water quality criterion have been replaced with the following: "If the results of the PCB monitoring are above the wasteload allocation or other endpoint specified in an approved TMDL, the permittee..."

   As requested I have added that the Pollutant Minimization Plan may evaluate the impacts of precipitation as specified in your letter.

   The PMP requirements represents an adaptive implementation approach for reducing PCBs with the expectation that the permittee would put some effort into establishing the source(s) and then come up with a way to reduce or eliminate. PCB monitoring is required where the TMDL indicates that a PMP is needed. While the due date for the data is toward the end of the permit term, monitoring data collected earlier in the permit term may be used to meet this requirement.

   - Also, I have changed the expiration date to the end of the month (April 30, 2019) so that the next permit effective date can be the beginning of the month.

   I will be moving forward with the signature of the permit so that it can be reissued on time. Please contact me if you have any concerns that you feel have not been adequately addressed or find any problems in the permit.

From: Lindsey G Forhan [mailto:lgforhan@aep.com]
Sent: Monday, May 19, 2014 9:33 AM
To: France, Becky (DEQ)

Cc: Edwards, Susan (DEQ); Jonathan M Magalski
Subject: VA0087114 Reissuance

Becky,

Please find attached joint comments from Appalachian Power Company and American Electric Power Service Corporation regarding the reissuance of VPDES permit VA0087114 for Reusens Hydroelectric Plant. We appreciate your consideration of our comments on the draft permit. If you would like to discuss any of our comments further, please don't hesitate to contact me at the number listed below or Jon Magalski at 614-716-2240.

Thank you,

Lindsey G. Forhan
Water and Ecological Resource Services
American Electric Power
(614) 716-2275
A: 8-200-2275
lgforhan@aep.com

France, Becky (DEQ)

From: Lindsey G Forhan [lgforhan@aep.com]
Sent: Monday, May 19, 2014 9:33 AM
To: France, Becky (DEQ)
Cc: Edwards, Susan (DEQ); Jonathan M Magalski
Subject: VA0087114 Reissuance
Attachments: AEP VA0087114 Draft Permit Comments.pdf

Becky,

Please find attached joint comments from Appalachian Power Company and American Electric Power Service Corporation regarding the reissuance of VPDES permit VA0087114 for Reusens Hydroelectric Plant. We appreciate your consideration of our comments on the draft permit. If you would like to discuss any of our comments further, please don't hesitate to contact me at the number listed below or Jon Magalski at 614-716-2240.

Thank you,

Lindsey G. Forhan
Water and Ecological Resource Services
American Electric Power
(614) 716-2275
A: 8-200-2275
lgforhan@aep.com

AMERICAN ELECTRIC POWER

American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
AEP.com

Ms. Becky L. France
Virginia Department of Environmental Quality
Blue Ridge Regional Office – Roanoke Office
3019 Peters Creek Road
Roanoke, Virginia 24019

May 19, 2014

RE: Appalachian Power Company – Reusens Hydroelectric Plant
Reissuance of VPDES Permit No. VA0087114
Draft Permit Comments

Dear Ms. France:

On behalf of Appalachian Power Company, American Electric Power Service Corporation (both hereby referenced as the Company) submits comments regarding the referenced draft permit for Reusens Hydroelectric Plant (Reusens). The Company appreciates the opportunity to provide comments to the Virginia Department of Environmental Quality (VDEQ) regarding this reissuance.

1. Part I.B.2. – Cooling Water and Boiler Additives

For clarity purposes, the Company requests any reference to "boiler" be removed from the permit. Reusens does not have a boiler. Additionally, Items 4 – 6 under Part I.B.a. are repeats of Items 1 – 3 and should be deleted. We propose the following strike-through edits:

2. Cooling Water ~~and Boiler~~ Additives

a. If at any time during the life of the permit, the permittee decides to treat any noncontact cooling water unit(s) ~~and/or boiler systems~~ with chemical additives, the following requirements shall be satisfied. Thirty (30) days prior to implementing any chemical addition to the cooling water ~~and/or boiler~~ equipment, the permittee shall notify the DEQ Regional Office, in writing, of the following:

(1) Chemical additives to be employed and their purpose. Provide, for review, a Material Safety Data Sheet (MSDS) for each proposed additive.

(2) Schedule of additive usage and,

(3) Wastewater treatment and/or retention to be provided during the use of additives.

~~(4) Chemical additives to be employed and their purpose. Provide, for review, a Material Safety Data Sheet (MSDS) for each proposed additive.~~

~~(5) Schedule of additive usage and,~~

~~(6) Wastewater treatment and/or retention to be provided during the use of additives.~~

2. Part I.B.3. – Materials Handling/Storage

This Special Condition was added to the draft permit and not contained in the existing permit. The Company believes it is applicable to fossil generation and manufacturing facilities, but not to Reusens. Additionally, we believe this condition is repetitive and addressed by Part I.B.4. of the permit (Best Management Practices Plan requirement). As such we request Part I.B.3. be removed from the permit. Alternatively, the language at the end of this section should be changed to read: "except in compliance with the permittee's best management practices plan."

3. Part I.B.6. – Closure Plan

This Special Condition was added to the draft permit and not contained in the existing permit. The Company believes it is applicable to fossil generation and manufacturing facilities, but not to Reusens. As such we request Part I.B.6. be removed from the permit.

4. Part I.B.7. – Upper James River PCB TMDL Requirements

As a general comment, the Company reiterates its concern regarding Method 1668 and its inclusion, in any capacity, in VPDES permits. The method has not been promulgated by EPA and, as acknowledged in DEQ's guidance, should only be used for TMDL development. There are concerns about the variability in the data generated using this Method. There are limited analytical laboratories that can perform the analysis, and fewer that are VELAP accredited. Finally, there is uncertainty about how and whether the company could ever be relieved of Part I.B.7. or at what point the condition can be terminated. As we have discussed, the Company disagrees with incorporating the Special Condition outlined in Part I.B.7. into the subject permit, particularly when the TMDL has yet to be developed and the permit already contains reopener provision. Nonetheless, we want to work with DEQ, and we understand DEQ's position with respect to including the condition. We are willing to agree to the condition with the following proposed revisions:

In the third sentence of the first paragraph in Part I.B.7.a., the reference to "exceedances" should be removed. This condition is tied to TMDL implementation, but including language regarding "exceedances of the water quality criterion" implies that the provision is tied to compliance. The remainder of the sentence, tying the PMP to the Waste Load Allocation or the endpoint of the TMDL is the most appropriate way to express DEQ's goal. While the endpoint of the TMDL may in fact be the PCB water quality criterion, it is important to preserve the distinction between TMDL implementation and compliance with a water quality criterion. Accordingly, we request that this portion of the subject sentence be deleted.

Additionally, the Company requests Part I.B.7.a.(6)(i) be revised to include contributions from precipitation in the evaluation of determining the net contributions from the facility. Since PCBs are ubiquitous, PCBs transported to the Reusens through precipitation and storm water runoff should be recognized. We propose the following underlined addition to Part I.B.7.a.(6)(i):

(i) May include an evaluation of the total PCBs and or PCB congener distribution in the initial source intake water and precipitation resulting in storm water runoff to determine the net contributions of PCBs introduced from the facility.

We appreciate the opportunity to review the draft permit and fact sheet for Reusens. If you have any questions or would like to further discuss any of the provided comments, please contact Jon Magalski of my staff at (614) 716-2240 or at jmmagalski@aep.com. Thank you for your attention to this matter.

Sincerely,

Alan R. Wood, P.E.
Director, Water & Ecological Resources Services – AEPSC

France, Becky (DEQ)

From: France, Becky (DEQ)
Sent: Tuesday, May 06, 2014 5:49 PM
To: 'Jonathan M Magalski'
Cc: Edwards, Susan (DEQ); Batsel, Kirk (DEQ); Foster, Kip (DEQ); Bowman, Frank (DEQ)
Subject: Proposed Revisions to Reusens Draft Permit
Attachments: Permit Part I and II Reusens 2014 5.doc

Tracking:

Recipient	Delivery
'Jonathan M Magalski'	
Edwards, Susan (DEQ)	Delivered: 5/6/2014 5:49 PM
Batsel, Kirk (DEQ)	Delivered: 5/6/2014 5:49 PM
Foster, Kip (DEQ)	Delivered: 5/6/2014 5:49 PM
Bowman, Frank (DEQ)	Delivered: 5/6/2014 5:49 PM

I have reviewed your permit comments and have made some revisions to the draft permit.

Part I.A.2 on page 2 of 9 --You requested a revision to temperature monitoring for outfall 006 from 1/month during June – September to July – September. The requested revision would only provide 3 data points during the year and the cooling water general permit requires quarterly monitoring which provides 4 data points per year. The temperature data are used to calculate the 90th percentile temperature for the reissuance, and the months of June through September represent the four months with the greatest potential for hot weather. Therefore, the temperature monitoring frequency has not been revised.

The typo Part I.A.3 on Page 3 of 9 has been corrected to read "discharge of process..."

Part I.B.7 – Revisions have been made to the PCB special condition.

- I have changed the title of the special condition to read Upper James River PCB TMDL Requirements. The special condition refers to some requirements following approval of the TMDL so I have named it Upper James River PCB TMDL Requirements.
- I have added the additional information clarifying the link between the TMDL and further PCB requirements. The TMDL will be based upon the discharge meeting the PCB water quality criteria or some other more stringent target value due to bioaccumulation effects that are modeled for the watershed. Where available, PCB data will be used in bioaccumulation effects in the watershed. Dischargers will be required to meet the resulting target concentration value as a wasteload allocation that is expressed in terms of a loading (which is calculated based upon their flow). Since the data are above 640 pg/L, reductions in PCBs are anticipated as part of the TMDL. But, the level of reductions required will not be known until the TMDL is complete and approved. I have included the words "or other endpoint" as noted in your proposed language to account for possible endpoints below the water quality criteria of 640 pg/L.
- I have changed the submittal due date for the PMP to within 6 months instead of 1 year. PCB monitoring data are above the water quality criteria of 640 pg/L so a PMP appears to be needed. The TMDL is expected to be completed in 2016 and 6 months after this date appears to be adequate time to develop the plan. If the TMDL is not approved until a month or more later there will most likely still be time to complete a PMP before the end of the year. AEP has the option of participating in the TMDL process and evaluating potential sources prior to the 6 month deadline. AEP will have over a year to anticipate this expected deadline.
- I have amended the PMP requirements to include reference to "investigate the location and potential reduction of sources of PCB in the discharges. I have not referenced the specific outfalls because the plan should identify sources associated with all the discharges. I understand that the monitoring would be from outfall 006 and 007 but the plan should include an evaluation of potential sources to all discharges from the facility.

- I have added the language "unless an extension is granted..... (eg. extensive delays in the TMDL development). By changing the due date for the PMP, an extension is less likely to be needed. In the case of a PMP completed toward the end of the year, it is anticipated that the report would be abbreviated as applicable (and as given in the timeline for the PMP).
- The full Guidance Memo citation was added to the monitoring requirement.
- I have changed the language about the protocol as requested to note that the sampling shall be conducted according to the sampling protocol previously submitted .....
- I have continued the language about the Appendix E reporting requirements since these are standard instructions and describe reporting requirements with the exception I have removed the reference to the due date of the 10th of the month following receipt of results. The due date is November 28, 2018 which coincides with the due date for the reissuance application. These data will be used as part of the next reissuance. You request that the special condition allow for an extension of the November 28, 2018 date for reasons outside the control of the permittee. These data are required for the reissuance application and so the data may be collected after the TMDL wasteload allocation development. Thus, the need for an extension is not anticipated.

From: France, Becky (DEQ)
Sent: Tuesday, May 06, 2014 12:10 PM
To: 'Jonathan M Magalski'
Subject: RE: Proposed Revisions to Reusens Draft Permit

I have made some changes to PCB special condition language in the permit. TMDL staff were out of town at a conference last week and following internal discussion will forward a copy of the proposed changes.

From: Jonathan M Magalski [mailto:jmmagalski@aep.com]
Sent: Wednesday, April 16, 2014 12:57 PM
To: France, Becky (DEQ)
Cc: Wortzel, Andrea W.; Ronald J Jefferson; Batsel, Kirk (DEQ); Edwards, Susan (DEQ)
Subject: Proposed Revisions to Reusens Draft Permit

Hi Becky:

Please find attached proposed revisions to the Draft Permit using track-changes. Specifically, the following revisions are proposed:

- Part I.A.2. on Page 2 of 9 – I agree it's appropriate to monitor temperature only during the summer months, but do not believe monitoring during June is necessary. Monitoring during July – September would also align with the quarterly monitoring.
- Part I.A.3.on Page 3 of 9 – I believe it should be worded "...discharge of process..." opposed to "discharge or process...".
- Part I.B.7. – Revisions were made to the PCB requirements that I believe add clarity.

Thank you in advance for your consideration of these proposed revisions. I also appreciate DEQ understanding our concerns with the PCB requirements. I've copied Susan and Kirk for their information. I believe our comments regarding the PCB requirements would be similar for Claytor, but need to follow up with Kirk to see what he had in mind for Leesville since it's a little different situation. If you have questions or would like to discuss, please let me know. As I mentioned before, I am out of the office today (and possibly tomorrow), but can be reached on my cell at 740-973-7540 or via email.

A. Limitations and Monitoring Requirements

2. During the period beginning with the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge from outfall number 006 (station sump). This discharge shall be limited and monitored as specified below:

	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
Effluent Characteristic	Monthly Average	Weekly Average	Minimum	Maximum	Frequency[a]	Sample Type
Flow (MGD)	NL	NA	NA	NL	1/ 3 Months	Estimated
Temperature	NA	NA	NA	32 °C	1/ Month (during months of Julyne – September)	IS
pH (S.U.)	NA	NA	6.0	9.0	1/ 3 Months	Grab

NL = No Limitation with monitoring required NA = Not Applicable
IS= immersion stabilization

a. Monitoring shall be conducted on a calendar year basis according to the following schedule: January 1 – March 31, due April 10th; April 1 – June 30, due July 10th, July 1- September 30, due October 10th; October 1 – December 31, due January 10th. The first monitoring period shall be July 1 – September 30.
b. See Part I.B.7 for PCB monitoring requirements.
c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

A. Limitations and Monitoring Requirements

3. During the period beginning with the permit's effective date and lasting until the permit's expiration date, the permittee is authorized to discharge storm water from the transformer deck (outfall 007)

This discharge shall be limited and monitored by the permittee as specified below:

This outfall shall contain storm water runoff only. There shall be no discharge of process wastewater from this outfall. There shall be no discharge of floating solids or visible foam in other than trace amounts.

See Part I.B.7 for PCB monitoring requirements.

B. Special Conditions

7. **Upper James PCB TMDL Development**

Formatted: Font: Bold

Formatted: Indent: Left: 1", First line: 0"

A TMDL for polychlorinated biphenyls (PCBs) on the Upper James River is scheduled to be developed in 2016. Monitoring data for PCBs previously generated by the permittee using EPA Method 1668 will be incorporated into that TMDL, along with any additional data that may be voluntarily collected by the permittee. If the results of the PCB monitoring indicate the Wasteload Allocation (WLA) or other endpoint established in the approved TMDL will be exceeded, the permittee shall prepare and submit to the DEQ Blue Ridge Regional Office for review and approval a Pollutant Minimization Plan (PMP). If the PMP is required, it shall be submitted within one year of the approved TMDL. ~~**Pollutant Minimization Plan**~~

a. Pollutant Minimization Plan (PMP)

~~If the results of the PCB monitoring indicate actual or potential exceedances of the water quality criterion or the Wasteload Allocation specified in an approved TMDL, the permittee shall submit to the DEQ Blue Ridge Regional Office for review and approval a Pollutant Minimization Plan (PMP) designed to investigate the location and potential reduction of sources of polychlorinated biphenyls (PCBs) in the discharges. If required, the PMP shall be submitted within one year of an approved TMDL.~~

Formatted: Indent: Left: 1.5"

If required, t~~T~~he PMP shall detail the practices and procedures which will be followed to investigate the location and potential reduction of sources of PCBs in the discharges (Outfalls 006 and 007). ~~-~~This PMP shall include, but not necessarily be limited to, the following items, as appropriate:

(1) Provide a facility contact for the contents of the PMP and any activities associated with the PMP; .

(2) Provide a proposed implementation schedule for minimization activities and prospective milestones;

(3) Propose actions for known or probable sources;

(4) Propose actions to find and control unknown sources;

B. Special Conditions

(4) Propose actions to find and control unknown sources;

(5) Summarize any previous minimization activities;

(6) Present methods for measuring, demonstrating, and reporting progress;

(i) May include an evaluation of the total PCBs and/or PCB congener distribution in the initial source intake water to determine the net contributions of PCBs introduced from the facility.
(ii) May include raw influent testing using either grab or composite samples.
(iii) Alternative PCB test methods are acceptable provided analytical sensitivities sufficient for detection and quantification.

7. **Upper James PCB TMDL Development (Continued)**

Formatted: Indent: Left: 0.5", Hanging: 1", Tab stops: 1", Left + Not at 0.56"

(iv) May perform further monitoring of the effluent to determine effectiveness of the reduction efforts and to reestablish a new baseline for PCBs in the discharges.

~~7. PCB Pollutant Minimization Plan (Continued)~~

Formatted: Indent: Left: 0.5", Tab stops: 0.5", Left + 1", Left + Not at 1.5"

(7) Provide information on continuing assessment of progress, which may include establishment of criteria to evaluate whether the location and potential reduction of PCB sources has been addressed.

b. Pollutant Minimization Plan Annual Report

~~If~~When a PMP is required, an annual report shall be submitted the DEQ Blue Ridge Regional Office for review and approval by **February 10th** for the previous year's PMP activities. The first PMP report shall be due on **February 10, 2018,** unless an extension is granted by the DEQ Blue Ridge Regional Office for reasons outside the control of the permittee (e.g. delays in the TMDL development).

Formatted: Font: Not Bold

The annual report shall:

(1) Summarize PMP achievement for investigating the location and potential reduction of sources of PCBs during the past calendar year;
(2) Address any revisions needed for the PMP for the coming year;
(3) Address material and process modifications, if applicable;

B. Special Conditions

(2) Address any revisions needed for the PMP for the coming year;
(3) Address material and process modifications, if applicable;
(4) Summarize measures taken to address known, probable, and potential sources; and
(5) Discuss incremental and cumulative changes from the baseline loading, if applicable.

c. Monitoring Data

If a PMP is required, t~~T~~he permittee shall monitor the discharge from outfalls 006 (if online) and 007 for PCBs and submit the data by **November 28, 2018** unless an extension is granted by the DEQ Blue Ridge Regional Office for reasons outside the control of the permittee (e.g. delays in the TMDL development). These data shall be used to evaluate the progress of the PMP.

7. **Upper James PCB TMDL Development (Continued)**

Formatted: Indent: Left: 0.5", First line: 0"

(1) Monitoring and analysis shall be conducted according to ~~the most current version of~~ EPA Method 1668, congener specific results as specified in the PCB Point Source Monitoring Guidance No. 09-2001 and/or its amendments. It is the responsibility of the permittee to ensure that proper QA/QC protocols are followed during the sample gathering and analytical procedures.

(2) The permittee shall collect a minimum of 1 wet weather sample (outfall 007) and 1 dry weather sample (outfall 006 – if online) according to the PCB Point Source Guidance No. 09-2001, Appendix C (Sample Collection Methods for Effluent) and/or its amendments.

~~7. PCB Pollutant Minimization Plan (Continued)~~

Formatted: Indent: Left: 0.5", Hanging: 1"

(3) Sampling shall be conducted according to the ~~approved~~ sampling protocol previously submitted and approved by the DEQ Blue Ridge Regional Office. Any changes to the protocol shall be submitted to the DEQ Blue Ridge Regional Office for review and approval prior to conducting sampling.

B. Special Conditions

DEQ Blue Ridge Regional Office for review and approval prior to conducting sampling.

~~(4) The data shall be submitted by the 10th day of the month following receipt of the results according to Appendix E (Reporting Requirement for Analytical (PCB) Data Generated Using EPA Method 1668) of TMDL Guidance Memo No. 09-2001, *Guidance for Monitoring Point Sources for TMDL Development Using Low-level PCB Method 1668 and/or its amendments.* GM09-2001, Appendix E, Attachment 2 indicates data is to be submitted directly to the TMDL Program at DEQ's Central Office in Richmond. However, the data shall be submitted to DEQ's Blue Ridge Regional Office which will include the unadjusted and appropriately quantified individual PCB congener analytical results. Additionally, laboratory and field QA/QC documentation and results should be reported. Total PCBs are to be computed as the summation of the reported, quantified congeners.~~

8. **Permit Application Requirement**

In accordance with Part II.M of the permit, a new and complete permit application shall be submitted for the reissuance of this permit by the following date: **November 28, 2018.**

PUBLIC NOTICE – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in the City of Lynchburg and Amherst County, Virginia
PUBLIC COMMENT PERIOD: April 19, 2014 through May 19, 2014
PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board
APPLICANT NAME, ADDRESS, AND PERMIT NUMBER: Appalachian Power Company, 1 Riverside Plaza, Columbus, OH 43215, VA0087114
FACILITY NAME AND LOCATION: Reusens Hydroelectric Plant, 4200 Hydro Street, Lynchburg, VA 24503
PROJECT DESCRIPTION: Appalachian Power Company has applied for a reissuance of a permit for Reusens Hydroelectric Plant. The applicant proposes to release cooling water at a rate of 0.154 million gallons per day into a water body. The facility proposes to release the cooling water into the James River in Amherst County in the James River/Blackwater Creek/Ivy Creek Watershed (VAC-H03R). A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH and temperature.
HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax, or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for a public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if a public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.
CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION: Becky L. France; ADDRESS: Virginia Department of Environmental Quality, Blue Ridge Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019-2738; (540) 562-6700; E-MAIL ADDRESS: becky.france@deq.virginia.gov; FAX: (540) 562-6725. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed above.